NAVAL MEDICAL RESERCH AND DEVELOPMENT COMMAND
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND

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COMMANDING OFFICER

Captain Edward T. Flynn, Jr., MC, USN

A native of Hartford, CT, Captain Flynn received a B.S. degree from Trinity College in Hartford, CT, in 1963, and his Doctor of Medicine degree from the University of Pennsylvania in Philadelphia, PA in 1967. He entered the U.S. Navy in 1967. After serving a rotating internship at the National Naval Medical Center in Bethesda, MD from 1967 to 1968, he completed six months of diving and submarine medicine training at the Naval Submarine Medical Center in Groton, CT. In 1969, Captain Flynn was designated a Qualified Submarine Medical Officer.

From 1969 to 1974, Captain Flynn served two tours of duty as an Undersea Research Medical Officer at the Navy Experimental Diving Unit in Washington, DC, and a two year post-doctoral fellowship in Hyperbaric Medicine and Respiratory Physiology at the State University of New York at Buffalo. During this period he was instrumental in developing innovative decompression procedures and thermal limits for deep diving. He served as an experimental subject on a 600-foot saturation dive and was the on-scene medical officer for a world record-breaking saturation dive to 850 feet off the coast of California.

In 1975, Captain Flynn reported to the Naval School, Diving and Salvage, Washington, DC, as the Senior Medical Officer. He introduced extensive changes in the medical officer curriculum and authored a 970 page Diving Medical Officer Student Guide which continues as the textbook used today.

Following completion of an anesthesia residency at the National Naval Medical Center in 1978, Captain Flynn reported to the Naval Medical Research Institute for duty as an Undersea Research Medical Officer. In 1981, he was appointed Head of the Physiology Division at the Naval Medical Research Institute and in 1984, was named Head of the Diving Medicine Department. For the next five years, Captain Flynn organized and directed major medical research programs in support of Fleet and Naval Special Warfare diving operations. In 1990, Captain Flynn was appointed as the Naval Medical Research Institute's Chair of Science.

Captain Flynn is a Diplomate of the American Board of Medical Examiners and the American Board of Anesthesiology. He serves on two NASA Advisory panels dealing with space medicine as well as the Joint Advisory Committee on Clinical Hyperbaric Medicine. He is the author or co-author of 80 professional publications. His military decorations include the Legion of Merit, the Meritorious Service Medal with Gold Star, the Navy Unit Commendation, the Meritorious Unit Commendation with Bronze Star, and the National Defense Service Medal with bronze Star.

Capt Flynn is married to the former Janet-Beth McCann of Philadelphia. They have one daughter, Erin. The Flynn's make their home in Great Falls, VA.

PREVIOUS COMMANDING OFFICERS

Previous Commanding Officers	
CAPT C. E. Brodine, MC, USN	1974 - 1977
CAPT J. D. Bloom, MC, USN	1977 - 1980
CAPT J. F. Kelly, DC, USN	1980 - 1985
CAPT W. M. Houk, MC, USN	1985 - 1988
CAPT J. N. Woody, MC, USN	1988 - 1991
CAPT E. T. Flynn, MC, USN	1991

BACKGROUND

Naval Medical Research and Development Command

National Naval Medical Center
Building 1, Tower 12
Bethesda, Maryland 20889-5606

Key Personnel

Code	Title	Name
00	Commanding Officer	E. T. Flynn, CAPT, MC, USN
09	Executive Officer	J. C. Cecil, III, CAPT, DC, USN
00A	Command Master Chief	K. M. Pedersen, HMCM, USN
01	Director, Resources & Finance	S.L. Hayes, LCDR, MSC, USN
02	Director, Administration	J.C. McDonough, CDR, MSC, USN
03	Director, External Relations	(vacant)
04	Director, Research and Development	R. C. Carter, CAPT, MSC, USN

The Naval Medical Research and Development Command (NMRDC) is committed to providing the best biomedical research support to the men and women of the Navy and Marine Corps who train and work in a wide variety of military occupations. This commitment is supported by the research excellence of military and civilian scientists, technicians, and support personnel. NMRDC scientists conduct basic, clinical, and field research directly related to military requirements and operational needs. Current studies focus on military recruits, special training groups, and personnel in the surface, submarine, air, and amphibious warfare communities.

NMRDC laboratory facilities equal those at modern academic and industrial institutions. Beyond this capacity, a number of NMRDC laboratories have unique test equipment and specialized software for pursuing research on current and projected biomedical problems. Research is also supported in other Navy laboratories as well as in partnership with the Army and Air Force and with other Federal agencies. Research in nongovernment laboratories is promoted through an active collaborative research and technology transfer program that develops cooperative research and development agreements with universities and private industries to ensure that research products from our laboratories benefit the entire country.

Navy-supported medical research efforts have influenced the civilian practice of medicine, assisted the Ministries of Health in developing nations, and provided technology for other Federal initiatives.

MAJOR RESEARCH PROGRAM AREAS

NMRDC's seven research program areas focus on operational medicine, which is occupational medicine practiced in a military environment. Operational medicine is very different from traditional medical care provided at military and civilian hospitals and clinics. Operational medicine specifically focuses on the physical readiness, performance, and safety issues faced by sailors and Marines who train and work in a wide variety of military occupations around the world.

A headquarters staff officer is assigned as the Research Area Manager for each program area. The Research Area Managers are the central contact point between the laboratories, where the research takes place, and headquarters, where budget decisions are made and research planning and execution policy is established. The Research Area Managers manage both intramural and extramural research activities. The in-house research efforts are complemented by a contract and grant program with universities and private industry.

Combat Casualty Care

The Combat Casualty Care Program, NMRDC's largest research program, directs research with results that enhances fleet health care, augments field treatment capabilities, and improves the medical logistics necessary to support Navy and Marine Corps personnel. Ongoing projects focus on key biomedical and casualty-relevant areas that include developing and incorporating advanced medical capabilities into each echelon of combat medical care.

To improve combat casualty care, researchers are developing technologies to enhance recovery from combat-related illnesses and injuries. Scientists are developing techniques for acclimating personnel to extreme environmental temperatures. Advancements are being made in developing universally transfusable human red blood cells and in evaluating the effectiveness of blood substitutes. Improved procedures are being developed for enhancing the recovery of injured hematopoietic and immune systems with the development of therapeutic reagents and with the use of recombinant growth factors and cytokines.

Current programs focus on:

- Field usable diagnostics
- Hematopoietic stem cells
- Immune system recovery
- Septic shock
- Patient identification and management aids
- Combat medical devices
- Blood products
- Blood substitutes
- Wound healing
- Hot and cold weather injuries
- Medical readiness planning tools
- Musculoskeletal injury

Infectious Disease

With sailors and Marines deployed around the world, mission-specific medical research on infectious diseases continues to be one of the Navy's highest priorities. Deployed personnel can be exposed to endemic diseases, many of which are rarely, if ever, encountered by physicians in the United States.

For this reason, the Navy has developed a series of strategically located overseas laboratories to study disease threats. These laboratories conduct basic, clinical, and field research related to the health and operational readiness of sailors and Marines deployed to specific areas overseas. Each laboratory is capable of deploying highly trained personnel and state-of-the-art laboratory diagnostic capabilities to any remote location. These laboratories, teamed with strong basic-science and technology-based laboratories in the United States, develop methods to prevent, diagnose, and treat the many tropical diseases encountered during military operations. The results of this continuous research has been key to the success of many military missions.

Current programs focus on:

- Methods for rapid identification and diagnosis of microorganisms that cause disease
- Epidemiologic assessment of emerging infectious diseases
- Development of field test sites for vaccines, drugs, and equipment
- Development of vaccines and drugs to prevent and treat:
  - Diarrheal diseases
  - Malaria
  - Hepatitis E
  - Respiratory diseases
  - Arboviral diseases
  - HIV
  - Rickettsial diseases

Diving and Submarine Medicine

The Diving and Submarine Medicine Program represents a Navy-unique center of excellence. Current research focuses on solutions to medically-related problems identified by the Navy's submarine, diving, explosive ordnance disposal, and special warfare communities.

In response to specific community-identified problems, scientists are conducting research in the biomedical and behavioral aspects of the submarine and diving environments. These include efforts focused on submarine rescue, deep water recovery, underwater construction, explosive ordinance disposal, and other diving scenarios. Current research also examines the areas of sonarman performance, qualifications for submarine duty, and methods to improve crew health and safety.

Special warfare research focuses on personnel performance, performance enhancement, and exercise-related injuries. Capabilities include the major Navy facility providing therapy for decompression sickness and cerebral arterial gas embolism. This facility also provides hyperbaric treatment for gas gangrene, carbon monoxide poisoning, and other diseases responsive to hyperbaric oxygen therapy.

Current programs focus on:

- Submarine Medicine
  - Enhanced sonarman performance
  - Medical qualifications for submarine duty
  - Crew health and safety
  - Emergency escape procedures
  - Effect of low frequency sonar on personnel
  - Submarine air quality
- Diving Medicine
  - Improved decompression procedures
  - Biomedical standards for diver life-support equipment
  - Treatment of decompression sickness and gas embolism
  - Hearing conservation
  - Long term health consequences of diving
  - Diver air quality
- Special Warfare/Explosive Ordnance Disposal
  - Multilevel diving procedures
  - Optimal use and toxic effects of oxygen
  - Maximizing human performance
  - Dry deck shelter air quality

Environmental and Occupational Health

In certain operational environments sailors and Marines are at risk of exposure to physical, chemical, and biological hazards that may threaten their health and degrade operational performance. Techniques for understanding the mechanisms of injury and disease associated with these environments are being developed to reduce or prevent injury, improve safety, and optimize mission effectiveness. Scientists are focusing on Navy-specific operational scenarios to establish effective standards for occupational safety and health, environmental protection, damage control, and fire prevention. In determining exposure limits researchers are concentrating on areas of study that include heat, noise, vibration, atmospheric contaminants, and various forms of electromagnetic radiation including lasers. The resulting research data are used to develop models predicting human exposure consequences in actual use situations, to tailor exposure limits during exposure conditions and to recommend medical surveillance and treatment guidelines.

Current programs include the assessment of biomedical risk and development of safe exposure criteria for:

- Noise
- Lubricants
- Hydraulic fluids
- Vibration
- Radio frequency energy microwaves
- Freon replacement compounds
- Solvents
- Propellants
- Shock

Researchers are also investigating life style factors including obesity, hypertension, smoking and drug use. Other studies focus on cancer risk, accidental injury, and the health care needs of military women in the fleet and during combat operations.

Aerospace Medicine and Human Performance

The Aerospace Medicine and Human Performance Program plays a vital role in solving medical problems unique to the naval aviation community. The diverse missions of the Navy can require sailors and Marines to venture into a variety of motion-based environments that can adversely affect performance.

There are three major objectives of the research and development efforts conducted in this program area. The first is to improve selection techniques and medical screening standards for evaluating Navy and Marine Corps candidates for specific duties and to enhance evaluations of fully trained personnel for continued duty. The second is to enhance physical readiness for sustained combat performance including operational performance in extreme environments. The third is reducing injury and operational hazards for combat personnel performing specific missions. A major portion of these efforts focus on aeromedically related problems including those dealing with acceleration, spatial awareness/spatial disorientation, and impact injury prevention.

Research results produce products supporting fleet operations, aircrew selection, and aircraft design and provide benefits to the non-aviation community as well.

Current programs focus on:

- Improved aviator selection techniques
- Microclimate cooling
- Laser eye protection
- Performance evaluation using enhanced night vision devices

Military Oral Health Research

Dental problems significantly impair operational readiness and sustainability. Navy and Marine Corps personnel can find themselves in operational settings with no immediate access to dental care where dental problems could jeopardize a multi-million dollar mission. These military-unique situations require dental research to characterize patient populations, identify better diagnostic and risk assessment techniques, develop better methods of prevention and treatment, improve the health care delivery system, and address short-fuse research-related issues.

Currently, researchers are investigating problems such as dental emergencies in operational environments, dental sealants on recruits, third molar emergencies, risk assessment by corpsmen, and systematic evaluation of disease progression prior to treatment. Navy dental research is the best, by far the most responsive, and most cost-efficient way to conduct this important research. Historically, Navy dental research has been a highly productive area of biomedical research.

Current programs focus on:

- Identification of patients at high risk for dental disease
- Dental emergencies during operational deployments
- Rapid and improved diagnostic techniques
- Epidemiologic assessment of treatment needs
- Evaluation of preventive and treatment methods that promote dental wellness

The National Marrow Donor Program

Bone marrow transplantation is a very successful method of treating bone marrow suppression caused by malignancy, radiation, or chemical injury. Prior to the Navy's involvement in the National Marrow Donor Program the only realistic possibility for a marrow donor was being an HLA (Human Leukocyte Antigen) matched sibling. Only 30% of needy patients have matched siblings.

With the appropriate facilities and personnel for bone marrow transplantation research, the Navy was tasked by Congress in 1990 to initiate research addressing tissue typing for patients without related donors and to develop an active Department of Defense recruitment program. That was the beginning of the Navy's C.W. Bill Young Marrow Donor Recruitment and Research Program.

New technology developed by Navy scientists is revolutionizing the way tissue typing is performed by permitting clinical analysis of an individual's genetic makeup. From the Navy laboratory to the clinic - technology to define HLA type by directly analyzing HLA genes from each donor is now a reality. The DNA for testing is obtained from a tiny sample of each donor's chromosomes, currently from blood cells but potentially from hair follicles or scrapings from the inside of the

mouth. Polymerase chain reaction technology is used to produce billions of copies of the short segment of DNA which codes for the specific protein structures that dictate HLA type. The precise nucleic acid sequences of many of the HLA types have been discovered. The technology is rapidly progressing to increase the number of HLA genes that can be tested. Automation is being introduced to increase capacity.

Because of these research advancements and recruiting efforts, the National Marrow Donor Program has a database of over one million volunteer marrow donors and now there is a better chance of success for patients seeking unrelated donors.

Naval Medical Research Institute

National Navy Medical Center
Bethesda, MD 20889-5055

Key Personnel

Code	Title	Name
00	Commanding Officer	R. G. Walter, CAPT, DC, USN
09	Executive Officer	D. A. Ehrhardt, CAPT, MSC, USN
00A	Command Master Chief	P. N. Granados, HMCM, USN
01	Director, Administration	B. J. Auth, CDR, MSC, USN
00C	Comptroller	D. E. Brandt, LCDR, MSC, USN
04	Chief Scientists	R. J. Hartzman, CAPT, MC, USN L.D. Homer, MD, PhD C. H. June, CDR, MC, USN C.G. Hayes, PhD R. W. Gaugler, CAPT, MSC, USN

From modest beginnings in 1942, with studies in vaccine testing and investigations of tropical and parasitic diseases, the Naval Medical Research Institute (NMRI) has evolved into the Navy's largest biomedical research facility. Today NMRI conducts research in a wide variety of biomedical disciplines including diving medicine, environmental medicine, immunology and transplantation, combat casualty care and infectious diseases.

Since 1942, NMRI has expanded dramatically to embrace many disciplines of medical research. The world's first tissue bank was organized as a component in 1949; America's first astronauts received part of their training at NMRI; early versions of the heart-lung machine were perfected with the help of NMRI scientists; NMRI researchers developed the freezing techniques that made sperm banks possible; and one of the world's most sophisticated complexes for hyperbaric studies began operations in 1981.

Though the focus of specific research conducted at NMRI has shifted many times over the years, the basic goal remains the same: the protection and enhancement of the health, safety, and efficiency of sailors and Marines. Located on the grounds of the National Naval Medical Center, Bethesda, MD, NMRI shares a campus with the National Naval Medical Center, the Armed Forces Radiobiology Research Institute, and the Uniformed Services University of the Health Sciences. NMRI is located across the street from the National Institutes of Health. There are many government, corporate, and academic research facilities within a 35 mile radius of NMRI. These include the Center for Vaccine Development at the University of Maryland, Baltimore campus; the U.S. Army Medical Research Institute for Infectious Diseases at Ft. Detrick, MD; and the Walter Reed Army Institute for Research, Washington D.C.

NMRI has three detachments. One is a toxicology detachment at Wright-Patterson, AFB, OH, where potentially hazardous materials are investigated. The second is an infectious diseases detachment in Lima, Peru where studies in tropical medicine are carried out in collaboration with the Peruvian Navy. The third detachment is with the U.S. Army Medical Research Unit, Nairobi, Kenya investigating Malaria vaccine development.

Naval Medical Research Institute Toxicology Detachment

NMRI/TD Bldg 433
2612 Fifth St
Wright-Patterson AFB, OH 45433-7903

Key Personnel

Title	Name
Officer-in-Charge	D. A. Macys, CAPT, MSC, USN
Director, Administration	D. V. Hedges
Detachment Military Officer	N. Lacy, CDR, MSC, USN
Senior Scientist	R. L. Carpenter, PhD, DABT
Senior Enlisted Advisor	M. S. Buring, HM1, USN

NMRI's Toxicology Detachment (TOXDET), the Navy's only toxicology research laboratory, was established in 1976 at Wright-Patterson AFB, near Dayton, OH. This collocation with the Air Force's lead laboratory in toxicology allows Navy researchers to work in a unique facility designed for continuous inhalation exposure. The major portion of the facility consists of eight very large exposure chambers known as the Thomas Domes. The domes are individually airlocked domes, built as a set of four, for three exposure levels and one control level.

Current TOXDET programs focus on occupational safety and health, environmental protection, and damage control and fire prevention. The resulting research data are used to develop models predicting human exposure consequences in actual use situations, to tailor exposure limits to exposure conditions and to recommend medical surveillance and treatment guidelines. Research at TOXDET means precise evaluation of hazards and therefore better decisions regarding how to control those hazards. The goal of TOXDET research is to minimize human health risks while also minimizing operational impacts. TOXDET also serves in a consultant role to many operating units of the Navy.

Naval Aerospace Medical Research Laboratory

Naval Air Station
Pensacola, FL 32508-1046

Key Personnel

Code	Title	Name
00	Commanding Officer	A. J. Mateczun, CAPT, MC, USN
00A	Executive Officer	J. C. Patee, CAPT, MSC, USN
00B	Chief Scientist	J. D. Grissett, PhD
00C	Senior Enlisted Advisor	R. A. Rich, HMCS(AW), USN
01	Head, Research Support Department	D. Hackett, LT, MSC, USN
13	Head, Finance/Comptroller	D. Hackett, LT, MSC, USN
02	Head, Research Department	J. O. de Lorge, PhD

The Naval Aerospace Medical Research Laboratory (NAMRL) in Pensacola, Fl is the Navy's principal research center in aerospace medicine. The results of long-term NAMRL research projects, such as the "Thousand Aviator Study" and the "Repatriated Prisoner of War Program", have led to revised selection standards and provided the basis for further study. Renowned for pioneering research in vestibular physiology, NAMRL continues to study the causes of disorientation. NAMRL scientists have designed unique motion-based devices to develop motion-sickness desensitization procedures. Experimental protocols developed at NAMRL were used to perform the first assessment of the transdermal scopolamine patch, which is widely used today in the private sector for motion sickness. NAMRL's discovery of vestibular reactions to "off-vertical rotation" prompted international scientific study. The research results are being incorporated into clinical neuro-otological assessment strategies at medical centers worldwide.

NAMRL scientists are studying the human-machine interface and developing new selection criteria and testing protocols. Current projects focus on end products such as performance degradation countermeasures for sustained operations and validation of multidisciplinary research protocols for drug therapy. Other project areas include research on the effects of lasers on visual performance, dynamic anthropometry, and dosimetry methods for measuring radiation absorption from shipborne high power radio antennas. Data collection in the operational environment will be expanded by using the mobile field laboratories with automated testing modules.

NAMRL scientists also study potential environmental hazards. Researchers have developed unique dosimetry procedures and apparatus, several of which have been patented for commercial applications. NAMRL's expertise in radiofrequency dosimetry also generated several inventions to combat cold exposure. One device applies radiofrequency energy to rewarm hypothermia victims. Other

devices are under development to warm the hands and feet of divers working in cold water.

NAMRL played a significant role in early space flight and NAMRL scientists currently make up part of the planning team for a proposed manned mission to Mars. In addition, NAMRL has duplicated parts of the space shuttle flight profile in order to better assess the vestibular effects experienced by the crew.

Naval Health Research Center

P O Box 85122
San Diego, CA 92186-5122

Key Personnel

Code	Title	Name
00	Commanding Officer	T. N. Jones, CAPT, MSC, USN
01	Executive Officer	T. J. Contreras, CAPT, MSC, USN
02	Scientific Director	S. Nice, PhD
03	Director, Administration	M. McCormack, LCDR, MSC, USN
04	Director, Finance/Comptroller	J. E. Bennett
00A	Senior Enlisted Advisor	F. Finua, HMC, USN

The Naval Health Research Center (NHRC) in San Diego, CA, studies the medical impact of operational environments on the physical and emotional fitness of sailors and Marines. NHRC is internationally recognized for research related to health and performance and works closely with the WESTPAC Fleet and the Marine Corps. Areas of research include preventive and clinical psychiatry, neurology, biochemistry, psychophysiology, exercise physiology, and social psychology. NHRC successes include studies of adaptation by military personnel wintering-over in the Antarctic and investigations of life style factors impacting military readiness including obesity, hypertension, smoking, and drug use. Other areas include studies of cancer risk, accidental injury, and the health care needs of women aboard ship.

The sleep laboratory at NHRC, the main DoD laboratory for sleep studies, investigates the effects of sleep loss and abnormal work and rest cycles on individual performance. Other NHRC facilities include a psychophysiology laboratory at the Naval Hospital, San Diego; an exercise physiology laboratory at the Naval Training Center, San Diego; and an experimental laboratory at the Marine Corps Mountain Warfare Training Center, Pickle Meadows, CA.

Naval Biodynamics Laboratory

P O Box 29407
New Orleans, LA 70189-0407

Key Personnel

Code	Title	Name
00	Commanding Officer	R. W. Rendin, CDR, MSC, USN
01	Executive Officer	L. Schoenberg, CDR, MSC, USN
10	Scientific Director	M. S. Weiss, PhD
302	Director, Facilities	M. N. Buford
40	Director, Manpower/ Administration	K. Rice, LT, MSC, USN
50	Director, Finance/ Comptroller	S. Garcia

The Naval Biodynamics Laboratory (NBDL), located at the NASA Michoud Assembly Facility in New Orleans, LA, is the primary Navy laboratory conducting biomedical research on the effects of mechanical forces encountered in Navy aircraft and ships. The results of this research, using human research subjects and specially designed manikins, establishes human tolerance limits and develops methods to minimize the adverse effects of these forces. NBDL is a unique Navy laboratory having the only billets for human research volunteers, whose standard tour length is 18 months.

Among NBDL's unique facilities are two impact accelerators: a nitrogen powered horizontal accelerator capable of delivering 225,000 pounds of thrust propelling a payload along a 200 meter indoor track, and a similar vertical accelerator capable of delivering 40,000 pounds of thrust with a 13 meter maximum range. NBDL operates the Navy's only ship motion simulator (SMS), capable of simulating ship motions in conditions up to sea state five with three degrees of freedom: heave, pitch, and roll. The SMS and a tri-axial tilt/rotational chair incorporating visual effects are used to study the effects of motion on human physical and mental performance.

Also, the laboratory has a computer link to an aircraft mishap database maintained at the Naval Weapons Engineering Activity, Washington, DC. Accessing these data, derived from Flight Surgeon Reports, enables the laboratory to integrate impact injury research with operational safety concerns in naval aviation.

Naval Submarine Medical Research Laboratory

Box 900
Naval Submarine Base, New London
Groton, CT 06349-5900

Key Personnel

Code	Title	Name
00	Commanding Officer	P. K. Weathersby, CAPT, MC, USN
01	Executive Officer	M. D. Curley, CDR, MSC, USN
02	Director, Administration/ Facilities	S. Blacke, LCDR, MSC, USN
03	Senior Enlisted Advisor	S. Featherston, HMCM, USN
07	Director, Finance/ Comptroller	G. Sack, LT, MSC, USN

The Naval Submarine Medical Research Laboratory (NSMRL) is the Navy's only submarine platform-designated medical research and development laboratory conducting basic and applied research in the biomedical and behavioral sciences aspects of submarine, hyperbaric, and diving environments. Scientific fundamentals are being established for the continued expansion of the physiological limits and capability of man in the sea, whether in the diving or closed-habitation mode. Greatly aiding investigators is an extensive array of equipment, including hyperbaric and anechoic chambers and fully equipped laboratories for research in respiratory physiology, biochemistry, vision, audition, and human factors engineering. Human performance on sonar and combat systems is currently a major program at NSMRL.

Naval Dental Research Institute

Building 1-H
Great Lakes, IL 60088-5259

Key Personnel

Code	Title	Name
00	Commanding Officer	S. A. Ralls, CAPT, DC, USN
00B	Command Master Chief	B. I. Bozont, SKCM(SW), USN
03	Scientific Director,	L. G. Simonson, PhD
00A	Director, Administration	P. F. Dubose-Lardy, LCDR, MSC, USN
04	Head, Clinical Investigations	D. M. Meyer, CAPT, DC, USN
23	Director of Finance	B.I. Bozant, SKCM(SW), USN
00C	Safety Manager	E. D. Pederson

The Naval Dental Research Institute (NDRI) at the Naval Training Center, Great Lakes, Il conducts research in fleet and field dentistry and is the only DoD laboratory dedicated to combat Dentistry and Oral Disease Research. Scientists are developing and evaluating methods to prevent or intercept acute dental conditions and improve dental readiness.

The identification of military patients at high risk for dental diseases is addressed through the development of rapid diagnostics assays involving monoclonal antibodies, DNA probes, and microbial enzymatic indicators. Dental emergencies in military personnel are addressed by the epidemiologic assessment of dental treatment needs, evaluation of methods to assist in the diagnosis and documentation of orofacial diseases; and evaluation of preventive and treatment methodologies to promote dental wellness.

Naval Dental Research Institute Detachment

Naval Dental School
National Naval Dental Center
Bethesda, MD 20889-5077

Key Personnel

Title	Name
Officer-in-Charge	A. C. Richardson, CAPT, DC, USN
Division Officer	L. I. Giambarres, LCDR, MSC, USN
Senior Enlisted	D. L. Jones, DTC, USN

The Naval Dental Research Institute (NDRI) Detachment- Bethesda is located at the Naval Dental School (NDS) at the National Naval Dental Center, Bethesda, MD. NDRI Detachment is responsible for coordination and guidance of NDS resident research performed as part of postgraduate specialty education, and for support of staff research projects. Although the primary mission of the NDS involves meeting the requirements for postgraduate specialty training, resident research efforts are channeled into areas which have the most potential for benefit to the Navy dental community.

Three major on-site collaboration efforts are underway with the National Institute of Dental Research; the Molecular Epidemiology and Disease Indicators Branch of the National Institute of Standards and Technology; and the National Aeronautics and Space Administration (NASA) Office of Technology Utilization.

OCONUS LABORATORIES

Naval Medical Research Institute Detachment

Unit 380
Lima, Peru
APO AA 34031

Key Personnel

Code	Title	Name
00	Officer-in-Charge	R. B. Oberst, CDR, MSC, USN
01	Administrative Officer	D. M. McClendon, LT, MSC, USN
00A	Senior Research Scientist	D. M. Watts, PHD
01E1	Administrative Asst.	R. Phillips, HMC, USN

The Naval Medical Research Institute Detachment (NMRI-DET) began activities in 1983 under a joint country-to-country agreement initiated by the Surgeon General of the Peruvian Navy to further research in infectious diseases in Peru, particularly as it relates to operational settings. NMRI-DET is the only U.S. Navy medical facility in South America. The detachment is located on the grounds of the Peruvian Navy Hospital in Lima and consists of a laboratory and administrative building and an animal facility. In addition, there is a satellite laboratory at the Peruvian Navy Hospital in Iquitos, in the Peruvian sector of the Amazon.

There is daily contact between the detachment personnel and representatives of various Peruvian groups such as the Ministry of Health; Surgeons General of the Navy, Army and Air Force; and many Peruvian universities, hospitals and clinics. Many civilian organizations in Peru also collaborate with the detachment. The most notable ones in Lima include the National Institutes of Health, the Cayetano Heedia Tropical Medicine Institute (Instituto Alexander Von Humboldt), the San Marcos University Tropical Medicine Institute, and numerous hospitals such as the Neoplastics Center, Santo Toribio, Almenara, Loayza, Dos De Mayo, Children's Hospital and many others.

The detachment conducts research on the diagnosis and treatment of infectious diseases of military importance in the regions of South and Central America. Facilities include fully equipped laboratories for the study of virology, bacteriology, parasitology, entomology and tropical medicine.

Naval Medical Research Institute Detachment

U.S. Army Medical Research Unit, Kenya
Unit 64109, Box 401
APO AE 09831-4109

Key Personnel

Title	Name
Officer-in-Charge	W. Weiss, CDR, MC, USN

The Naval Medical Research Institute initiated an agreement with the Walter Reed Army Institute of Research to assign a Navy medical research officer to work on malaria at the Army's research facility in Nairobi, Kenya. Research efforts include the evaluation of a remarkable population of Kenyans who are resistant to malaria. This is the first group found anywhere in the world that appears to be naturally protected against malaria, and their resistance may be of utmost importance in understanding malarial immunity.

U.S. Naval Medical Research Unit No. 2

Box 3 Unit 8132
Jakarta, Indonesia
FPO AP 96520-5000

Key Personnel

Code	Title	Name
00	Commanding Officer	F. S. Wignall, CAPT, MC, USN
09	Executive Officer	R. P. Olafson, CAPT, MC, USNR
01	Administrative Officer	R. J. Mulvanny, LCDR, MSC, USN
007	Director, Finance/Comptroller	B. E. White, LT, MSC

The U.S. Naval Medical Research Unit No. 2 (NAMRU-2) began activities in 1968 when the Indonesian Ministry of Health (MOH) requested assistance in controlling a plague epidemic. The success of that collaborative effort results in the MOH's invitation for NAMRU-2, then located in Taipei, Taiwan, to remain in Jakarta for the purpose of developing research activities of mutual interest to Indonesia and the U.S. Navy. NAMRU-2 was officially established when laboratory space was provided by the MOH in 1970.

The geographic location offers researchers access to a 3,500 mile archipelago astride the equator in Southeast Asia. The majority of tropical infectious diseases of military importance occur in Indonesia. Distinctly Asian diseases occur on the western islands of the archipelago and diseases more typical of the South Pacific region occur on the eastern islands, especially Irian Jaya. Almost all infec-

tious diseases of military importance can be found within the Indonesian archipelago: malaria, dengue fever, typhoid, cholera, leptospirosis, filariasis and Japanese encephalitis as well as other hemorrhagic fevers, enteric pathogens, viruses and parasites.

Field sites for epidemiologic or vaccine trials are available throughout the archipelago. Unlimited opportunities exist for:

- addressing the immunology, pathophysiology and mechanisms of the etiologic agent-vector-man interactions of military relevant vector-borne diseases
- devising better methods for the prevention, treatment and management of infectious diseases
- developing more specific and sensitive methods for rapid diagnosis of tropical infections
- acquiring the epidemiologic data to define naturally occurring infectious threats, transmission rates, preventive measures, diagnostic procedures and appropriate therapy
- conducting basic research on the pathogenic mechanisms of tropical infectious diseases, focusing on immunologic events, antigenic and genetic characterization of etiologic agents and mechanisms of infectivity.

U.S. Naval Medical Research Unit No. 2 Detachment

Manila, Republic of the Philippines
FPO AP 96440-5000

Key Personnel

Code	Title	Name
00	Officer-in-Charge	J. G. Perrault Jr., CDR, MSC, USN
01	Admin/Fiscal/Supply Officer	S. L. Brown, LT, MSC, USN
02	Scientific Director	C. R. Mamaloto, MD
03	Senior Enlisted/Lab Supervisor	M. C. Aninzo, HMC, USN

The Naval Medical Research Unit No. 2 Detachment (NAMRU-2 DET) had its beginnings under the Rockerfeller Institute on Guam during World War II. The primary function was to study infectious diseases of potential military significance in Asia. In 1955, the detachment was reestablished in Taipei, Taiwan, Republic of China, where it functioned with distinction for twenty-four years. As a leading biomedical laboratory is Asia, the detachment is frequently requested to provide assistance in other Asian countries for training and for expertise in epidemiology and treatment and control of various infections disease problems. Today the detachment acts as a regional resource for tropical infectious diseases diagnosis and information. The detachment coordinates and provides logistic support for infectious disease research conducted by scientists from NAMRU-2 Jakarta and other NMRDC components.

U.S. Medical Research Unit No. 3

PSC 452 Box 5000
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Key Personnel

Code	Title	Name
00	Commanding Officer	R. G. Hibbs, CAPT, MC, USN
01	Executive Officer	S. M. Mapes, CDR, NC, USN
00B	Command Master Chief	T. A. Thurman, HMCM, USN
10	Head, Administrative Department	
20	Head, Finance/Comptroller	R. N. Baylon, LT, MSC, USNR
30	Head, Research Sciences Department	B. R. Merrell, LCDR, MSC, USN
40	Head, Public Works Department	N. F. Florez, LT, CEC, USNR

The United States Typhus Commission was established by presidential order in 1942 to develop effective prevention and control measures for typhus. A research laboratory staffed by American scientists and technicians associated with the Abbassia Fever Hospital in Cairo, Egypt was established to address this problem among troops in North Africa. The Typhus Commission laboratory played a major role in adverting a serious typhus outbreak during and following World War II. After the war, the Egyptian Government invited the Navy to continue collaborative studies with Egyptian scientists focusing on endemic tropical and subtropical diseases. In response to this request, the U.S. Naval Medical Research Unit No. 3 (NAMRU-3), Cairo, Egypt was formally established by the Secretary of the Navy in 1946. NAMRU-3 has been in continuous operation since 1946 despite periods of tension, and a seven year lapse of U.S.- Egyptian diplomatic relations (1967 - 1973).

NAMRU-3's professional staff possesses expertise unique in the Northeast African region. NAMRU-3's recognized excellence in epidemiology and all aspects of retroviral diagnostics resulted in Command designation by the World Health Organization as the diagnostic reference center for AIDs in the Eastern Mediterranean region. The strength of NAMRU-3's basic molecular and immunological studies of schistosomiasis resulted in the selection of the unit as the USAID supported American collaborating center for the development of improved diagnostics and candidate vaccines for the strains of S. mansoni and S. haematobium associated with human disease in Egypt.

NAMRU-3 conducts a multi-faceted basic, clinical, and field research program relating to the health and operational readiness of military personnel assigned or deployed to Southwest Asia or Africa. Of particular interest are those infectious diseases endemic to the region which may adversely impact troops during military operations within the area. The unit is fully capable of deploying both highly qualified

field-trained personnel and state-of-the-art field-applicable laboratory diagnostic capabilities to any remote area in the region. In addition, the Unit is a state-of-the-art medical research facility equipped to conduct even the most technologically advanced basic science research.

THIRTEEN PROPOSALS SELECTED FOR FY93 INDEPENDENT RESEARCH/INDEPENDENT EXPLORATORY DEVELOPMENT PROGRAM

Six new proposals and six continuing studies were selected for NMRDC's FY93 Independent Research (IR) program, and one new proposal was funded as Independent Exploratory Development (IED) work. These proposals were selected from a total of 38 IR/IED candidates submitted in the April 1992 competition. Each proposal was evaluated for technical merit by three external reviewers and for management issues by the NMRDC research program staff.

Evoked Otoacoustic Emissions and Inner Ear Damage from Previous Noise Exposure

Dr. Lynne Marshall, NSMRL

This study will determine whether changes in evoked otoacoustic emissions ("noise" produced by the ear in response to a stimulus) can be used as a non-invasive, objective measure of inner ear damage resulting from noise exposure. The long-term goal is to minimize the incidence of job-related hearing loss, ensure that Navy personnel can perform their jobs, and save large sums of compensation money. (This study was chosen last Spring as NMRDC's winning FY94 Accelerated Research Initiative).

Identification of Human Receptors for Dengue Virus and Analysis of Virus-Receptor Interactions

CDR Mitchell Carl, NMRI

This study's goal is to identify the interactions between host cell receptors and dengue virus proteins which allow the virus to enter the cell. The information gained will aid in the design of antivirals to block the entry of the virus into the host cell and decrease the incidence of this debilitating disease.

The Role of Cytokines in Recovery from Enteric Compromise Following Hemorrhagic Shock

Dr. Florence Rollwagen, NMRI

This study will determine the role of selected cytokines in healing the intestinal mucosa and the responses of the local and systemic immune systems following hemorrhagic shock. This information will lead to new ways to speed repair after intestinal injury and to prevent overwhelming infection by controlling the translocation of bacteria from the gut into the peritoneal cavity.

Evaluation of the Influence of Superantigens and Polyclonal B-Cell Activators in Periodontal Diseases

Dr. Glenn Miller, NDRI Det Bethesda

This study will determine whether superantigens (bacterial products that stimulate T-cells) and polyclonal B-cell activators can function as virulence factors which modulate the host immune response and establish the conditions necessary for the development of periodontitis, apical periodontitis, and other localized inflammatory diseases.

The Development of Flow Injection Analysis Methodologies in Toxicology

CDR Nathan Lacy, NMRI TOXDET

This project intends to establish a new technique for studies in Navy toxicology by determining if pertinent analytes can be evaluated accurately through the use of Flow Injection Analysis. If successful, this approach will allow comprehensive, realtime, kinetic evaluations of toxicological action.

Immunity to Malaria Infection and T Cell Reactivity to the Circumsporozoite Protein

CDR Walter Weiss, NMRI DET Kenya

This study will determine whether T cell reactivity to the circumsporozoite (CS) protein of Plasmodium falciparum correlates with natural protection in Kenyan subjects. CS proteins from infected individuals will be amino acid-sequenced to determine the T cell reactivity of CS protein variants. This information will provide new insight on the importance of the cellular immune response in protecting against malaria.

Plasma Volume, Vasopressin, and the Genetics of Motion Sickness

Dr. Warren Lockette, NHRC

This study will determine whether plasma volume influences an individual's susceptibility to motion sickness, whether the synthetic hormone, 1-desamino-8-D-arginine vasopressin, modulates motion sickness, and whether motion sickness susceptibility is genetically controlled. (Note: First year work in this IR lead to its successful submission as an FY95 ARI candidate).

The Performance of Neuropeptide Y on the Acquisition and Performance of Response Sequences During Heat Stress

Dr. John Schrot, NMRI

This study will define the basic mechanisms by which neuropeptides, released in response to heat stress, exert profound effects on learning and memory. The information from this study will contribute to the development of pharmacological strategies to protect personnel from the deleterious effects of heat. (Progress in the first year of this IR supported its successful evolution into an FY95 ARI candidate).

Role of the Rec A Gene in the Antigenic Variation of Campylobacter

Dr. Patricia Guerry, NMRI
This study will determine whether a generalized recombination system (Rec A) controls campylobacter's (a bacterium) ability to vary its surface antigens and virulence determinants, and to be naturally transformed. Success in this project will provide the basis for unique experimental genetic manipulation systems for campylobacter.

Idiotypic Mimicry of Endotoxin and Endotoxin Receptors

Dr. C-H Lee, NMRI
This study will clarify the mechanisms of lipopolysaccharide (LPS) binding to endothelial cells and will identify antiidiotypic and monoclonal antibodies that mimic or neutralize LPS. This information will help clarify the LPS-host interactions that result in septic shock and will lead to new approaches for septic shock prevention.

The Use of LEET and Bright Light Separately and Together for Shifting the Work/Rest Cycle

Dr. Tamsin Kelly, NHRC
This study will determine the effects of electromagnetic fields and timed bright light exposure on the adaptation of subjects to a ten hour shift in the wake/sleep cycle. Such studies on the adaptation of personnel to circadian rhythm/time zone changes have been specifically requested by the Marine Corps.

Modulation of Cell Surface Adhesion Molecules and Cytoskeletal Reorganization by Cytokines in Monocyte-Endothelial Cell Interactions

Dr. Y-H Kang, NMRI
This study will clarify the cellular mechanisms regulating inflammation. Specific goals include determining the effects of cytokines, LPS, and thrombin on the expression of monocyte and endothelial cell surface adhesion molecules and receptors; the interaction between monocytes and endothelial cells; and, the reorganization of the cytoskeleton.

The Effect of Stress on Performance and Decision Making Within the Realm of Complex Human-Machine Interfaces

LT Karl Van Orden, NSMRL
This project will examine the effects of exogenous stress (such as fear or command pressure) on cognitive processes, including information assimilation and decision-making. Operator performance on the Navy Advanced Information Management Evaluation System (NAIMES) will be monitored under stressful and control conditions (NAIMES is a computer-based, scripted, unfolding AEGIS-like tactical scenario that requires the user to answer questions by seeking out information within the display and to make decisions regarding tactical action).

JOINT FORWARD LABORATORY IN SOMALIA

Possible retaliation from rival factions in Somalia was not the only threat to American troops as they helped distribute food to the country's starving population. The forces also faced the danger of infectious diseases prevalent to that part of the world. To help combat the problem, NMRI established an infectious disease diagnostic laboratory as part of the Joint Medical Task Force in Mogadishu, Somalia. This laboratory rapidly diagnosed infectious diseases that occurred in deployed forces. This allowed the preventive medicine practitioners to put measures into place preventing epidemics from occurring. A similar laboratory was set up during Operation Desert Shield/Storm.

COMPUTER-BASED PERFORMANCE TESTS DEVELOPED BY NAMRL TRANSITION FOR USE IN AVIATION TRAINING SELECTION

Computer-based performance tests (CBPTs) developed at NAMRL facilitate the assessment of cognitive and psychomotor skills of potential Naval and Marine Corps aviators. Research indicates that the present rate of attrition from primary flight training would be reduced from 10% to 6% by including the CBPTs as an additional screening test. Given that the cost of training a single aviator can range from $0.8 to 1.5 million, the reduced attrition represents a substantial savings to the Navy. Also, the CBPTs can predict student success/attrition further along in training than any instrument currently available. Representatives from the Chief of Naval Operations; the Chief of Naval Education and Training; the Chief of Naval Aviation Training; and the Commander, Naval Recruiting Command reviewed the CBPTs to determine the advisability of transition to the Naval Aviation Schools Command. The group carefully examined the background and development of the CBPTs and decided the tests would significantly enhance the ability to predict the likelihood that an aviation candidate will successfully complete primary flight training. The CBPTs may ultimately prove useful in establishing pipeline assignment guidelines and in identifying weak students with low probabilities of successful advanced flight training completion. Twenty-five computer-based work stations have been installed for field testing at the Naval Aviation Schools Command.

A NEW SYSTEM AND METHOD FOR QUANTIFYING MACROPHAGE PHAGOCYTOSIS BY COMPUTER IMAGE ANALYSIS

Current light microscopic examination and manual counting of particles in individual cells is the most common method of quantifying phagocytosis, but only a few cells can be analyzed and no quantitative morphometric data is obtained. Another method, flow cytometery, can quantify phagocytosis of many cells in suspension, but cannot provide detailed morphometric data. Researchers at NMRI have developed a new method and algorithm for rapidly quantifying phagocytic functions using computer image analysis of video light microscopic images. This new image analysis procedure provides significantly faster phagocytic function analysis than manual microscopic examination and more detailed quantitative morphological data than flow cytometery. This procedure provides an accurate

and rapid computer-assisted quantitative phagocytosis method that enhances immunological and pathophysiological lines of research by screening for and detecting the substance phagocytosability, the efficacy of immunization with bacterial extracts, the resistance of/or to bacteria, and the wound healing process.

POST-INJURY ENHANCEMENT AND MODULATION OF HEMATOPOIETIC AND IMMUNE SYSTEM RECOVERY

Following severe trauma to the immune system and blood-forming tissues caused by damaging chemical, biological or radiation exposure in combat, patient survival and cell recovery depends on the ability of surviving stem cells to produce daughter cells and regulatory growth factors for the regeneration of all vital components. Biological proteins, such as the broad family of growth factors are powerful regulators of tissue repair, particularly after traumatic injury. Researchers in the Immune Cell Biology Program at NMRI are investigating specific regimens using human growth factors, lymphokines, cytokines, and other regulatory agents for the enhancement and modulation of blood forming tissues and immune system recovery. One achievement, a culture system derived to cause growth of stem cells in simple laboratory tissue flasks, indicates that it is possible to obtain at least a million-fold increase in the population of stem cells and other hematopoietic cells. This system should permit the development of a new form of transfusion therapy using autologous (self) stem cells. The stem cells remaining in the bone marrow of injured personnel can be cultured, rapidly cloned, and re-administered to restore bone marrow function. This system can also serve as an ideal platform for somatic gene therapy, where genes of interest can be introduced into the stem cell culture system, and the improved stem cells transfused for correction of genetic defects.

NEW SUBMARINE RESCUE MANUAL

NSMRL provided undersea medical officers and submarine crew rescue teams with a valuable resource, the **Pressurized Submarine Rescue Manual** to assist in rescuing survivors of a disabled submarine. NSMRL scientists conducted extensive pulmonary oxygen toxicity and decompression research to establish the safe procedures outlined in the manual. Various methods of safe decompression from 132 fsw were explored and researchers developed decompression tables for air, nitrox, and trimix gas mixtures. Further work on decompressing with a trimix gas led to a 1.5 day decrease in decompression time when compared to standard saturation rates. The manual reviews concepts of pressure, hypoxia, hyperoxia, and atmosphere contamination. Factors affecting the decision of a crew to either escape to the surface or await rescue are examined. Included are algorithms (decision trees) which when incorporated with decompression procedures could be useful under a variety of rescue scenarios. The information in the manual represents a synthesis of material from many sources. The manual is intended to supplement the Submarine Rescue Manual ATP 57 and the Search and Rescue Instructions ATP 10(d), Chapter 8.

NAMRL TESTS RADIOFREQUENCY RADIATION PROTECTIVE SUITS

NAMRL has entered into a Cooperative Research and Development Agreement (CRADA) with Maxwell Safety Products, Ltd., of Smithtown, NY. This action is taken under the authority of the Federal Technology Transfer Act of 20 October 1986, as amended. Under this CRADA, Maxwell and the Bioengineering Division of NAMRL will work together to perform highly specialized tests regarding the effectiveness of NAPTEX ™ Radiofrequency Radiation (RFR) Protective Suits. Using the uniquely valuable "human-equivalent" model development by NAMRL a series of irradiation tests will measure specific absorption rates (a measure of energy absorption within the human body). Reliable RFR Protective Suits are products that have been long-waited and anticipated by industries that use radiofrequency technology.

THE GENETICS OF MOTION SICKNESS

Motion sickness and disorientation are significant operational concerns for the Navy and Marine Corps. Current studies have documented an unacceptably high incidence of motion sickness in air crew and shipboard personnel. Studies also have recognized that, in the underwater environment, sensory conflicts, body fluid redistribution, and nitrogen narcosis make Navy divers highly susceptible to motion sickness. Researchers at NHRC; the Wayne State University School of Medicine, Detroit, MI; and the University of Michigan Medical School, Ann Arbor, MI are investigating a new approach to the problem of motion sickness. They are focusing on the cellular and molecular physiology of gene expression to determine if a predisposition to motion sickness is an inherited trait. Genetic differences in the complement of receptors on autonomic neurons of the central and peripheral nervous system could explain the differences in an individual's susceptibility to motion sickness. Preliminary findings suggest that a genetic polymorphism of the alpha-2 adrenergic receptor (encoded by chromosome 10) is associated with the development of motion sickness. This approach can also be used to understand the variations in human responses to other physical stresses in the operational environment, such as a predisposition to heat stroke or gravity-induced loss of consciousness.

NAMRL RESEARCHERS WIN FY95 ACCELERATED RESEARCH INITIATIVE AWARD

A distinguished panel of scientists met at NMRDC to review research proposals competing for FY95 funding as a 6.1 Accelerated Research Initiative (6.1 is basic research directed towards increasing essential fundamental scientific knowledge of broad benefit to Naval operational needs and technology applications). The panel selected the proposal, "Virtual Environment Displays in Acceleration Environments", presented by CDR Angus Rupert, MC, USN, a researcher at NAMRL. The panel recommended an initial three-year, $550K per year award. Virtual environments are synthetic environments that can be influenced by the interactions of the user; for example, a pilot might control the motion of remote physical objects or influence the events of a flight simulation. The problem addressed in CDR Rupert's proposal is that human perceptual and motor responses may be very

different in virtual-dynamic environments than in virtual-static environments (the standard condition for virtual environment testing). Initial studies indicate that using virtual displays during certain kinds of acceleration may distort a pilot's perception of orientation and velocity. In order to develop techniques to minimize the distortion, this research will attempt to characterize these misperceptions and then identify parameters that cause these illusions. The advent of virtual reality technology and its projected future use in the fleet make this the time to do such basic research. The work will benefit the Navy, DoD, NASA, and the civilian sector.

NMRI-DET RESEARCHERS BEGIN CHOLERA VACCINE FIELD TRIAL IN PERU

Historically, diarrheal diseases have been a major cause of wartime morbidity in deployed military personnel. Cholera is a severe, dehydrating form of diarrhea caused by Vibrio cholera. A safe, effective vaccine against cholera would offer a valuable preventive treatment for troops deployed in developing countries where cholera is endemic, and would be a considerable improvement to the parenteral vaccine currently available. Peru was the first country in South America to be affected by cholera on a large scale in more than a century. Factors of limited sanitation, lack of potable water, lack of access to medical care, and devastating poverty have all compounded the spread of the disease (although the cholera outbreak in Latin America is less than two years old, there have been over a half million illness reports; 50,000 hospitalizations; and over 2,000 deaths). Navy researchers at NMRI-DET have started a randomized, controlled field trial of the killed Vibrio cholera whole cell plus recombinant B subunit cholera vaccine. This 30-month study, involving 62,000 Peruvians over the age of 2 years, is being conducted in collaboration with Cayetano Heredia University, Lima, Peru, and is funded by the U.S. Army Medical Material Development Activity.

RESEARCHERS STUDY THE MOLECULAR AND CELLULAR MECHANISMS REGULATING INFLAMMATION

Navy personnel engaged in combat or hazardous operations can suffer from traumatic injuries and infections resulting in adult respiratory distress syndrome, multiple organ failure in sepsis, and impaired wound healing. In an effort to develop a therapeutic strategy for controlling the intensity of local inflammation, researchers in the Septic Shock Treatment Program at NMRI are investigating the molecular and cellular mechanisms regulating inflammatory reactions. Using immunofluorescence, immunoelectron microscopy and radioimmunoassay, researchers are studying the effects of cytokines, growth factors, and two known mediators of inflammatory reactions (lipopolysaccharide and thrombin) on the expression of cell adhesion molecules and cytoskeletal reorganization in endothelial cells, monocytes, and macrophages. The objectives of this research are to define the cellular mechanisms that regulate inflammation and to develop a pharmacologic and/or immunologic means for modulating the intensity of inflammation.

PATENT ISSUED ON NEW MEMBRANE-BASED RAPID DOT IMMUNOASSAY TEST KIT DEVELOPED FOR USE IN THE FIELD

A patent was issued recently on a new membrane-based immunoassay and on the method of use which was developed by researchers at NMRI. The new rapid dot immunoassay test, developed for use in the field, can be easily and quickly performed without the use of special equipment. The kit contains a chemically stable "test strip" comprised of a hydrophobic membrane to detect one or several antigens or antibodies. Known antigens or antibodies which will form complexes with the antigens or antibodies to be assayed are spot filtered with pressure through the membrane. The membrane, either by itself or attached to a base material, is incubated with a test fluid. The resulting antibody-antigen complex is incubated directly or after an intermediate anti-antibody incubation with enzyme conjugated immunoglobulin and exposed to substrate which produces a colored insoluble product if the test target is present. The test kit includes the proper test strip, wetting solution, washing solution, buffer/surfactant solution, buffer solution, enzyme conjugated immunoglobulin solution, and substrate as well as containers for carrying out the dilutions and incubations.

UNAIDED AND AIDED NIGHT VISION TRAINING DEVELOPED

NMRDC's Aviation Medicine and Human Performance Program concentrates on the interaction between military personnel and their working environments. NAMRL, in collaboration with the Naval Aerospace and Operational Medical Institute, developed Unaided and Aided Night Vision Training Kits to teach aircrew personnel the idiosyncrasies of night vision. The Unaided Night Vision Training Kit focuses on ways to exploit the strengths of the human visual system in dark operational environments. Through demonstrations involving the central or night blind spot, the physiological blind spot, silhouette recognition, autokinesis, the Purkinje Shift, false horizons, etc., each user experiences several visual illusions characteristic of unaided night operations. The Aided Night Vision Training Kit utilizes electro-optical (EO) devices. The kit illustrates the change in image resolution caused by decreased illumination, the effects of strobes and incompatible lighting, and the importance of correct adjustment of EO devices prior to use. The kits were originally designed for aircrew personnel and are applicable to many warfare specialties. Using input provided by the Army Research Institute and the Army Rangers, the kits are currently being modified for use by Marine Corps and Army ground forces.

NMRDC EXPANDING REGIONAL DISEASE SURVEILLANCE EFFORTS IN INDOCHINA

NAMRU-2 is responsible for infectious diseases research in support of Navy and Marine Corps operational activities in Southeast Asia and the western Pacific. NAMRU-2 is expanding regional disease surveillance efforts into Vietnam and the Lao People's Democratic Republic. In Vietnam, Navy researchers are working with host medical institutions in studying the epidemiology of hepatitis, malaria and drug-resistant tuberculosis. Also, NAMRU-2 researchers are provid-

ing training in field applied epidemiology and establishing a diagnostic capability in country. In the Lao People's Democratic Republic Navy researchers are assisting host institutions in studying hepatitis E and blood-mediated viral diseases.

EVALUATING ADVANCES IN 3-DIMENSIONAL IMAGING FOR SURGICAL TREATMENT PLANNING AND ORAL DIAGNOSIS

Recent computer hardware and software advances have made 3-dimensional (3-D) visualization technology available on the clinical desktop workstation. Researchers at NDRI DET are working with surgeons and clinicians at the National Naval Medical Center, Bethesda, MD to determine the potential applicability of this technology for future surgical treatment planning and oral diagnosis at Navy treatment facilities. The goal of the evaluation is to determine how much more clinically-relevant information can be extracted from the same radiographic exposures routinely ordered for medical/dental examinations. No additional radiation or patient involvement is required to make 3-D images, since all image data are retrieved from archived magnetic tapes. Active 3-D images are created using clinical image data from computer-assisted tomography (CT) 9-track tapes. The raw CT image data are translated into 16-bit raster data, then mapped into 8-bit images. Converting CT images to enhanced 3-D images takes approximately two hours with current computer hardware. The results are clinical images ready for interactive manipulation. Computer "dissection" of images and volume substraction routines can show hidden problems after bony structures are disarticulated on the monitor. Images can be rendered with soft tissue intact or removed.

REDUCING CORONARY HEART DISEASE RISK IS THE GOAL OF A CURRENT NUTRITION STUDY

Researchers at NSMRL and over 600 volunteer crew members of five Trident submarines are involved in a nutrition study combining the unique operational environment of submarines with the goal of substantially reducing coronary heat disease (CHD) risk. Navy shipboard conditions such as confinement, lack of exercise equipment, and the lack of time to exercise are barriers to increasing cardiovascular health in the operational Navy; these conditions are even more severe aboard submarines. Past studies have indicated a trend toward hypercholesterolemia in submariners. The volunteer crew members received nutrition education prior to deployment. In addition, the food service personnel are providing submarine crew members with nutritionally sound meals which are lower in fat, cholesterol, and calories than the traditional submarine fare. A variety of nutritionally sound choices are offered while maintaining acceptability and palatability. Researchers are monitoring changes in the total cholesterol, high density lipoprotein cholesterol, low density lipoprotein cholesterol, triglycerides, blood pressure, percent body fat and weight of each volunteer. A reduction of CHD risk factors should lead to improved cardiovascular health and physical readiness while decreasing lifetime medical expenditures and incidences of death and illness associated with CHD.

THE FIRST FEMALE RESEARCH VOLUNTEERS REPORT ABOARD NBDL

Five female human research volunteers reported for an 18 month tour of duty at NBDL. These women join their male counterparts in helping researchers study the effects of impact acceleration and ship motion on Navy and Marine Corps personnel. Current impact studies investigate potential injuries from the effects of indirect forces on the head and neck. These studies include the use of a 700 foot horizontal accelerator and a 36 foot vertical accelerator. The horizontal accelerator is used to obtain data for human response to simulated crashes and the vertical accelerator allows a more realistic investigation of the biomechanical effects of forces similar to those produced by an aircraft ejection seat. The vertical accelerator is also used to simulate forces encountered aboard Navy ships during underwater explosions. Volunteers are initially exposed to low levels of acceleration which are increased in increments of a single "G" within a well-established safety range. Before, during, and after each test, a data acquisition system is used to collect and analyze inertial and physiological measurements. The ship motion simulator (SMS) and a tri-axial tilt/rotation chair with a visual effects device also are used to study the effects of motion on physical and mental performance. NBDL's ship motion simulator (SMS) is capable of creating ship motion in conditions up to sea state 5 with three degrees of freedom: heave, pitch, and roll.

THE ROLE OF NEUROPEPTIDE Y ON THE ACQUISITION AND PERFORMANCE OF RESPONSE SEQUENCES DURING HEAT STRESS

Maintaining optimal troop performance under conditions of thermal stress is of paramount importance to Fleet operations. Well trained Navy and Marine Corps personnel, are often required to work in hot environments and perform complex tasks to satisfy mission requirements (i.e. missile launch operators, pilots, navigators, SONAR operators, artillery fire direction teams, and SEALS). This thermal stress appears capable of degrading cognitive performance (learning and memory) through alterations of neuropeptides in specific areas of the central nervous system. The basic mechanisms of how thermal stress-induced neuropeptide releases effect learning have not been well defined. A team of researchers in the Thermal Stress Adaptation Program at NMRI are examining the role of neuropeptide Y (NPY) in mediating thermal stress-induced affects on cognitive functions. NPY may have an important role in the mechanisms by which thermal stress disrupts human cognitive behavior. NPY is a 36 amino acid polypeptide that has been shown to be involved in vertebrate stress responses and influences the acquisition and performance of response sequences in an animal model. The information generated by this research is essential for developing a neuropharmacological strategy to prevent and treat thermal stress effects on performance in operational environments.

NMRDC'S BONE MARROW REGISTRY PROGRAM SUPPORTS TECHNOLOGICAL AND CLINICAL DEVELOPMENT WITH THE NATIONAL MARROW DONOR PROGRAM

Bone marrow transplantation is a very successful method of treating bone marrow suppression caused by leukemia and other malignancies, radiation, or chemical injury. Prior to the Navy's involvement in the National Marrow Donor Program (NMDP) the only realistic possibility for a marrow donor was being an HLA (tissue type) matched brother or sister and only 30% of needy patients have matched siblings. With the experienced personnel and appropriate facilities for bone marrow transplantation research, the Navy was tasked by Congress in 1990 to initiate research addressing tissue typing for patients without related donors and to develop an active Department of Defense (DoD) recruitment program. That was the beginning of the Navy's C.W. Bill Young Marrow Donor Recruitment and Research Program. Previous HLA typing technology relied on 30 year old methods to test donor's white blood cells for HLA proteins. New technology, developed by Navy scientists, is revolutionizing the way tissue typing is performed by permitting the direct analysis of an individual's genetic makeup. Sophisticated research laboratory-based technology to define HLA type by directly analyzing HLA genes from each donor has moved to clinical reality. The DNA for testing is obtained from a tiny sample of each donor's chromosomes, currently from blood cells but potentially from hair follicles or buccal scraping (from the mouth). Polymerase chain reaction technology is used to produce billions of copies of the short segment of DNA which codes the specific structure of that part of the chromosome dictating HLA type. The precise nucleic acid sequence of many of the HLA types have been discovered. Once the specific DNA is amplified, it is probed with short pieces of specific nucleic acid unique for HLA types. The technology is rapidly progressing to increase the number of HLA genes that can be tested and automation is being introduced to increase capacity.

Because of the research and recruiting efforts, NMDP has a database of over 1,000,000 volunteer marrow donors and now there is a better chance of success for patients seeking unrelated donors. Today, samples from 1,000 volunteers are typed each week by the Bone Marrow Registry Program at the Naval Medical Research Institute, Bethesda, MD and NMDP civilian laboratories with technical support from the Navy. And each week a DoD volunteer marrow donor provides marrow for a potentially life saving transplant.

CYTOKINES MODULATE THE IMMUNE RESPONSE TO CAMPYLOBACTER INFECTION

Campylobacteriosis is recognized as one of the most common bacterial infections causing acute diarrhea and bacterial gastroenteritis in military personnel throughout the world. Investigators at NMRI recently reported some intriguing new information of the ability of certain cytokines to control Campylobacter jejuni infection in mice. After establishing infection in the mouse intestine, the investigators measured the levels of circulating (serum) and local (mucosal) cytokines and anti-Campylobacter antibodies developed in response to the infection. Also analyzed were the effects of orally administered

pure recombinant cytokines on the rate of campylobacter elimination from the intestine. It was determined that certain cytokines, most notably interleukin-6 (IL-6), were important modulators of Campylobacter jejuni infection. After infection, the level of IL-6 increased quickly at the mucosal level, peaking after three days. When infected mice were fed recombinant IL-6, there was a rise in the production of secretory IgA antibodies and an immediate (24 hours), 1000-fold reduction in the bacterial load in the gut. The mechanism(s) of these cytokines effects is not known. However, the cytokine activities observed using this mouse model of campylobacter infection, along with the increasing availability of pure recombinant cytokines, give promise to the potential use of cytokines in advanced treatment of Campylobacter diarrheal disease.

NMRDC'S ISSUED PATENTS

Protective Malaria Sporozoite Surface Protein Immunogen and Gene Encoding

Patent # 5,198,535

Inventors - CAPT Stephen Hoffman, Dr. Yupin Charoenvit, LCDR Richard Hedstrom

A protein antigen (SSP2) on the surface of P. yoelii sporozoites is disclosed as a candidate immunogen for vaccination against human malarial species. The use of this protein, which is distinct from the extensively characterized circumsporozoite (CS) protein, will also facilitate research into host immunological responses to malaria.

A Membrane Based Dot Immunoassay and Method of Use

Patent # 5,200,312

Inventor - Dr. John J. Oprandy

Antigens or antibodies are detected using a novel membrane based immunoassay. Known antigens or antibodies which will form complexes with antigens/antibodies to be assayed are spot filtered with pressure through a membrane. The membrane, either by itself or attached to a base material as a test strip, is incubated with a test fluid. Consequently, the resulting antibody-antigen complex is incubated directly or after an intermediate anti-antibody incubation with enzyme conjugated immunoglobulin and exposed to substrate which produces a colored insoluble product if the test target is present.

Inhibitors of Protein Kinase C Activity as Protectors Against Septic Shock and Reducers of ARDS

reg. # H1168

Inventors - Dr. Thomas M. McKenna, Dr. Taffy J. Williams

An agent and treatment for an individual susceptible to septic shock. The individual is treated with a PKC inhibitor, preferably with a PKC inhibitor selected from the group consisting of lipid analogues. Preferred among the lipid analogues are sphingosine and its analogues. The inhibitors of this invention are administered, preferab-

ly by infusion in a suitable pharmaceutical carrier, in a range of 0.1 to 50 mg/Kg body weight preferably in the range of 0.5 to 25 mg/Kg body weight and most preferably in the range of 1 to 5 mg.Kg body weight.

Small, Simple and Cost-effective Schiner-Principle Optometer with Computer Interface for Automated Assessment

Patent #5,223,866
Inventor - Dr. William B. Cushman
A Scheiner-principle optometer for automated assessment. The specific advantages of the invention over earlier ones are:
1) simplicity of design, 2) hand held, portable implementation,
3) light weight, 4) small size, 5) low manufacturing cost, and
6) the use of a monochromatic light source to eliminate the effects of chromatic aberrations in the subject's eye.

Advanced Eye or Sensor Protection and High Speed Variable Optical Attenuation System

Patent # 5,255,117
Inventor - Dr. William B. Cushman
In order to protect the eyes or other sensor, from light produced, e.g., by modern laser weapons which have extremely fast onset times and high power per pulse, a protection shutter device is provided which is based on the integrative property of such sensors. The sensor is shielded for a large proportion of the time and only exposed after a light detector associated with the protection device has assured a safe environment. The normal exposure provided is a series of rapid image-views that integrate over time within the sensor. In an eye goggles embodiment, clear vision is maintained and a fast-response variable-density "sunglass" is perceived by the wearer. Only one eye is exposed and thus at risk at any one time, and that eye only about 10% of the total time. A high-speed mechanical shutter controls the exposure experienced by the sensor.

NMRDC's CRADAs

A Cooperative Research and Development Agreement (CRADA) is an agreement under the technology transfer statutes that permits the unique capabilities or inventions of a Government laboratory to be supported by a collaborator in the private sector.

NAMRL/ [An Airline]

Goals: To exchange data and information about the performance of pilots who have served with both the Navy and the Airline. This information will include the results of screening tests evaluating psychomotor coordination, cognitive skills and various personality attributes.

NMRI/Cellco, Incorporated

Goals: To develop technology that will permit in vitro culture and expansion of human hematopoietic progenitor cells. A specific culture system will be tested for the ability to rapidly and significantly expand human hematopoietic stem cells for use in clinical situations such as autologous bone marrow transplantation and gene therapy.

NMRI/Microcarb, Incorporated

Goals: To develop, test and evaluate the safety, immunogenicity and protective efficacy of prototype Campylobacter vaccines derived from organisms grown on mucus, mucus-derived components, defined or purified mucus components or their analogs.

NAMRU-3/Murex Corporation

Goals: To evaluate rapid diagnostic assays for the detection of HIV antibodies in a high prevalence population in the Republic of Djbouti providing an actual field environment utilizing different body fluid sources compared against the "gold standard" serum HIV ELISA with confirmatory Western blot.

NMRI/Molecular Devices Corporation

Goals: To produce high affinity murine monoclonal antibodies and/or polyclonal sera to saxitoxin and fluorescein and investigate the sensitivity and specificity of these antibodies in rapid hand-held diagnostic assays and the threshold biosensor.

NAMRU-2/Hoffmann-La Roche Inc.

Goals: To compare the efficacy of mefloquine versus doxycycline as anti-malarial prophylactic agents of chloroquine-resistant malaria in Indonesia through a placebo-controlled, blinded trial and perform related research studies.

NMRI/Vical Incorporated

Goals: To collaborate in the evaluation of novel vaccine approaches for the prevention of malaria, by direct intra-muscular administration of genetic material (DNA) encoding protein antigens derived from malaria parasites.

NHRC/The University of Alabama at Birmingham

Goals: To examine evidence for carriage and invasive disease due to mycoplasma species infections among Navy personnel diagnosed with pneumonia and to compare three diagnostic techniques for detecting pharyngeal colonization with mycoplasma.

SIGNIFICANT EVENTS IN 1993

Date	Significant Event in 1993
1993	Dr. Jeannine Majde, ONR Scientific Officer for Biological Systems was TAD to Code 04 up to two days per week, to facilitate coordination of ONR and NMRDC programs related to Combat Casualty Care and Immunobiology.
JAN 93	Mr. Kip Johnson (Code 00S) attended a four-hour demonstration by Arbee Associates at their Washington, DC showroom. The group discussed the frequency and severity of cumulative trauma disorders in the office environment and suggested proven ways to prevent their recurrence in office employee populations. Particular emphasis was placed on the prevention of carpal tunnel syndrome and the prevention of back injuries.
14 JAN 93	CDR P. D. Kent, MC, USN (Code 45) attended Tri-service meeting at U.S. Army Medical Material Development Activity for milestone decision for advanced cell wash system.
19 - 22 JAN 93	Mr. A. David Spevack (Code 00CC) attended 1993 East Coast Conference for all Office of General Counsel field attorneys in Lakehurst, NJ.
26 - 27 JAN 93	CDR T. Singer, MSC, USN (Code 41) attended the ASBREM JTCG-5 Panel Review of all Tri-service Environmental Extremes R&D, USARIEM, Natick, MA.
FEB 93	Mr. Kip Johnson (Code 00S) assisted in the review and update of NMRDC Safety Instruction NMRDCINST 5100.1D. This 49 page document addressed major new requirements in mishap reporting/recording, hazardous materials, chemical hygiene, traffic safety, recreational safety, FECA/Return to Work Program and Ergonomics.
2 - 3 FEB 93	Mr. A. David Spevack (Code 00CC) lectured on intellectual property and CRADA's at NAMRL.
3 FEB 93	CDR P. D. Kent, MC, USN (Code 45) participated in a Tri-service meeting at USAMMDA concerning the Resuscitation Fluids Production System.
4 FEB 93	NMRDC Sailor of the Year Board selected HM2 Gail Maria Seaman from NBDL.

Date	Significant Event in 1993
21 FEB - 3 MAR 93	Mr. A. David Spevack (Code 00CC) was a student in 129th Contract Attorneys Course at the Judge Advocate General's School in Charlottesville, VA.
23 - 25 FEB 93	CDR T. Singer, MSC, USN (Code 41) participated in ASBREM JTCG-5 Panel Review of all Tri-service Operational Medicine and Human Performance R&D, NHRC.
24 FEB 93	Ms. Christine Eisemann (Code 42) discussed NMRDC participation in the National Research Council Post Doctoral Fellowship program with Dr. Rozelle of NHRC. CAPT R.C. Carter, MSC, USN (Code 04) discussed NMRDC use of the NIH review process to determine the quality of NMRDC proposals with Dr. Raymond Bahor.
25 FEB 93	CDR J.C. McDonough, MSC, USN (Code 02) reported aboard as Administrative Officer.
MAR 93	Mr. Kip Johnson (Code 00S) Attended the a seven day Naval Environmental Health Center Conference in Norfolk, VA. Valuable information was provided in such workshops as Biohazards in the Workplace, Toxicology of Heavy Metal Contaminants and other safety, environmental, occupational health and preventive medicine concerns.
4 MAR 93	Accelerated Research Initiative Basic Research Competition. Panel of external reviewers recommended a proposal on spatial disorientation by CDR Angus Ruppert
4 MAR 93	The FY95 Basic Research Selection Panel meet at NMRDC to choose the FY95 ARI.
19 MAR 93	CAPT R. C. Carter, MSC, USN (Code 04) gave a luncheon talk about Navy medical R&D to the staff of HSETC.
17 MAR 93	Change of Command at NDRI, CAPT S.A. Ralls, DC, USN, relieves CAPT J.C. Cecil, III, DC, USN.
20 MAR 93	CAPT J.C. Cecil, III, DC, USN (Code 09) reported aboard as Executive Officer.

Date	Significant Event in 1993
22 - 25 MAR 93	CDR T. Singer, MSC, USN (Code 41) participated in the Medical Department Specialty Advisors Strategic Planning Conference, Rockville, MD.
23 MAR 93	CAPT R. C. Carter, MSC, USN (Code 04) briefed Navy medical R&D to the Technology Subcommittee of the Navy Medical Department specialty advisors conference.
24 MAR 93	CDR P. D. Kent, MC, USN (Code 45) participated in NMRI External Advisory Committee Meeting for Septic Shock Research.
APR 93	The FY94 Independent Research Competition results.
APR 93	Mr. Kip Johnson (Code 00S) attended the four-day BUMED Safety Engineering Conference in Norfolk, VA, where safety concerns in construction, utility use, fire prevention and NAVOSH Programs at BUMED activities were discussed.
APR 93	NAMRU-3 was inspected by the BUMED IG team. The overall rating received by NAMRU-3 was satisfactory. NAMRU-2 was inspected by the BUMED IG team. The overall rating received by NAMRU-2 was satisfactory.
1 APR 93	CAPT R.C. Carter, MSC, USN (Code 04) briefed visiting RADM Surgeon Commander Hazell of the Royal Navy.
1 APR 93	Visit of Surgeon Commodore Hazell and CDR Pollard of the Royal Navy. The visit included a brief by CAPT E. T. Flynn, MC, USN (Code 00) and a tour of NMRI.
16 APR 93	CAPT E.T. Flynn, MC, USN (Code 00) and CAPT R.C. Carter, MSC, USN (Code 04) visited VADM (ret) James Zimble.
27 - 30 APR 93	CDR T. Singer, MSC, USN (Code 41) participated in the joint Navy-Army Conference regarding spatial disorientation problems in rotary wing aviation communities, NAS Pensacola, FL.
28 - 29 APR 93	External Scientific Peer Review of NMRDC Cold Pathophysiology Programs found the general quality to be excellent and unique. Ms. Eisemann (Code 42) subsequently received a special act award for managing the review.

Date	Significant Event in 1993
MAY 93	Mr. Errol Gillette and Ms. Laura Weiss of the Navy Environmental and Preventive Medicine Unit, No. 2 (Norfolk) conducted an Occupational Safety and Health Management Evaluation at the NMRDC Headquarters workspace. They found no major program deficiencies and provided many suggestions to assist our overall management of safety programs. The inspectors were also afforded the opportunity to tour some of the NMRI workspaces to increase their knowledge of laboratory safety procedures.
5 - 6 MAY 93	Mr. A. David Spevack (Code 00CC) attended the annual Office of General Counsel seminar in Crystal City, VA.
10 MAY 93	CAPT J.C. Cecil, III, DC, USN (Code 09) assumes responsibility for protection of human subjects.
10 - 12 MAY 93	CDR T. Singer, MSC, USN (Code 41) participated in ONR spatial disorientation R&D review, NAS Pensacola, FL.
11 MAY 93	CDR P. D. Kent, MC, USN (Code 45) attended training to be official Navy point of contact for Health Care Technology for the White House Technology Reinvestment Project.
12 MAY 93	CAPT E. T. Flynn, MC, USN (Code 00), CAPT R. G. Walter, DC, USN (NMRI), CAPT R. Carter, MSC, USN (Code 04) and CAPT B. Gaugler, MSC, USN (NMRI), met to discuss development of blood research programs at NMRI.
24 - 28 MAY 93	CDR P. D. Kent, MC, USN (Code 45) attended annual all hands meeting of Navy Science Advisory Program as Navy Medical Program Manager.
24 - 26 MAY 93	CAPT J. C. Cecil, III, DC, USN (Code 09) attends Clinical Investigation Short Course, San Antonio, TX.
27 MAY 93	CAPT J.C. Cecil, III, DC, USN (Code 09) visits NDRI DET San Antonio, TX.
28 MAY 93	HMCM, K. M. Pedersen, USN (Code 00A), attended Tenant Command Meeting.
JUN 93	CDR F. P. Paleologo, MC, USN (Code 04B), Special Assistant for Use of Human Subjects in Research , departed.

Date	Significant Event in 1993
JUN 93	Mr. Kip Johnson (Code 00S) conducted an Occupational Safety and Health Management Evaluation at NHRC. The NHRC Safety Officer, LT Linnville, provided a Command Safety Program that was found to have no program deficiencies, the first command to do so.
4 JUN 93	Awards Ceremony.
7 JUN 93	Ethics training was conducted for all hands at NSHS.
7 JUN 93	NMRDCINST 3900.2 Protection of Human Subjects from Research Risks signed.
9 JUN 93	Somatogen Inc. representatives visited CAPT R. C. Carter, MSC, USN (Code 04), to discuss their work for NMRDC on recombinant hemoglobin.
9 JUN 93	The Working Group on Information Management and Business Practices met at NMRDC to discuss the development of a unified research proposal format.
	NMRDC submitted proposals to ONR Science Directorate for competitive funds to encourage science and technology integration between laboratories and between programs. NMRDC subsequently won two grants for these funds.
25 JUN 93	CAPT R. CAPT Chaput, MSC, USN, (Code 09) Acting Executive Officer, retirement luncheon.
30 JUN 93	CAPT R. Chaput, MSC, USN (Code 09), retirement ceremony aboard U.S.S. Barry.
2 JUL 93	CDR P.D. Kent, MC, USN (Code 45) was interviewed by Navy News This Week concerning the Navy's Blood Substitute R&D program.
JUL 93	LCDR M.C. Leorza, MSC, USN (Code 02), Administrative Officer, departed.
12 JUL 93	CDR P.D. Kent, MC, USN (Code 45) briefed Wound Healing and Liposome Encapsulated Hemoglobin ATD projects to senior ONR personnel.
19 - 21 JUL 93	Advanced Technology Demonstration proposal briefings to OPNAV and to ONR. NMRDC subsequently won funding for a proposal on spatial disorientation by CDR Angus Ruppert, MC, USN, NAMRL.

Date	Significant Event in 1993
22 JUL 93	NMRDC picnic
27 JUL 93	CAPT R. C. Carter, MSC, USN (Code 04) attended training on prevention and response to sexual assault.
27 - 29 JUL 93	CDR T. Singer, MSC, USN (Code 41) participated in the ASBREM FTCG-5 Panel meeting, NMRDC, Bethesda, MD.
29 JUL 93	LCDR L.H. Fenton, MC, USN (Code 411) reported aboard as Research Area Manager for Submarine and Diving Medicine.
30 JUL 93	Mr. A. David Spevack (Code 00CC) speaker at National Technology Transfer Center and The Association of Federal Technology Transfer Executives program on "Cooperative Research and Development Agreements: Current Status and Issues" in Washington, D.C.
1 AUG 93	LTC Albert McCullen, VC, USA (Code 00C), reported for duty at NMRDC.
6 AUG 93	CAPT Brodine visited CAPT Carter, MSC, USN (Code 04) to discuss NHRC R&D programs.
10 AUG 93	CAPT Carter, MSC, USN (Code 04) took CAPT J. C. Patee, MSC, USN (NAMRL) BUMED Director of Surface Medicine to a briefing about the medicine prospects given by the Information Technology Division of NRL. CAPT Carter's attempt to determine any Navy medical requirement in this area produced a negative result.
12 AUG 93	LCDR P.L. Knechtges, MSC, USN (Code 412) reported aboard as Research Area Manager for Environmental and Occupational Health.
17 AUG 93	Mr. Andrew Wowczuk of the National Technology Transfer Institute in Wheeling West Virginia briefed CAPT R. C. Carter, MSC, USN (Code 04) and CAPT R. W. Gaugler, MSC
18 AUG 93	NMRDC's new voice mail telephone system commenced operation.
22 AUG 93	NMRDC Command Picnic
24 AUG 93	CAPT W.C. Parsons, MSC, USN (Code 00B) reported aboard as U.S. Army Program Liaison Officer.

Date	Significant Event in 1993
25 - 26 AUG 93	CDR P.D. Kent, MC, USN (Code 45) as chairman of the Joint Technology Coordinating Committee - 6 (Combat Casualty Care), delivered brief at the Annual Science & Technology Reviews for ASBREM.
26 AUG 93	Inaugural meeting of the NMRDC Human Use Review Panel, under NMRDC instruction 3900.2, replacing previous one-person review.
27 AUG 93	CDR J. R. Beddard, MSC, USN (Code 411) detached duty at NMRDC as Research Area Manager for Occupational/Environmental Health; a farewell luncheon was held.
31 AUG 93	Dr. J. Silva, PhD detached duty as NHRC Technical Director for Director, ONR London Field Office. He visited NMRDC and ONR on 31 August enroute to London.
1 SEP 93	Ms. V. Crowder (Code 42S) received a farewell luncheon upon departure from NMRDC as R&D Directorate secretary.
7 - 8 SEP 93	LTC Albert McCullen, VC, USA (Code 00C) attended meeting of the National Capital Area Branch of the American Association of Laboratory Animal Science at Hunt Valley
9 SEP 93	CAPT R. C. Carter, MSC, USN (Code 04) attended a Navy Secretariat coordinating meeting for initiatives related to Historically Black Colleges and Universities (HBCU). In 1993, NMRDC distributed its proposal solicitations directly to HBCU, and provided postdoctoral training at NAMRL.
10 SEP 93	CAPT E. T. Flynn, MC, USN (Code 00) and CAPT R. C. Carter, MSC, USN (Code 04) met with RADM Scott (N-931) and RADM Houley (N-091) to discuss plans for laboratory consolidation and personnel reductions in response to N8 and the OPNAV Resources and Requirements Review Board.
13 SEP 93	CDR P.D. Kent, MC, USN (Code 45) participated in NMRI External Advisory Committee Meeting for Septic Shock Research.

Date	Significant Event in 1993
14 SEP 93	CAPT R. C. Carter, MSC, USN (Code 04) met with Dr. Majde and CDR Hawkins of ONR to discuss biomedical Science and Technology initiatives within the context of DoD Joint Mission Areas.
14 - 16 SEP 93	CAPT J.C. Cecil, III, DC, USN (Code 09) attended the CO/XO Symposium, Richmond, VA conducted by OCPM.
17 SEP 93	Farewell luncheon for LCDR Mike Dobson, MSC, USN (Code 03) Facilities Director.
20-24 SEP 93	Basic training on Total Quality Leadership (TQL) was provided off site for all hands.
21 SEP 93	LTC Albert McCullen, VC, USA (Code 00A) gave a talk to group at HSETC on "Current Animal Use Issues".
23 SEP 93	CAPT E. T. Flynn, MC, USN (Code 00), CAPT R. G. Walter, DC, USN (NMRI), CAPT R. C. Carter, MSC, USN (Code 04), and CAPT R. W. Gaugler, MSC, USN (NMRI), and members of their staffs met to discuss development of blood-related R&D programs at NMRI.
28-30 SEP 93	CAPT E. T. Flynn, MC, USN (Code 00), CAPT J. Cecil, III, DC, USN (Code 09) and NMRDC department heads received Covey Leadership training at Naval School of Health Sciences.
28 SEP 93	CDR P.D. Kent, MC, USN (Code 45) participated in the Blood Research & Development Coordination meeting with Armed Services Blood Program Office.
OCT 93	LCDR M.E. Dobson, MSC, USN (Code 03) departed
1 OCT 93	The new NMRDC Organization Manual was signed by CAPT E. T. Flynn, MC, USN (Code 00) at an all-hands ceremony.
	Mr Pfiffer and Mr. Johnson from 3M Corporation visited CAPT R. C. Carter, MSC, USN (Code 04) to discuss cooperative R&D.
4-6 OCT 93	HMCM, K. M. Pedersen, USN (Code 00A) attended the Surgeon General/Force Master Chief Conference 25 - 29 OCT 93.
6 OCT 93	LT J. Barnes, III, MSC, USN (Code 12) reported aboard as Director Automated Information Systems Division.

Date	Significant Event in 1993
7 OCT 93	CAPT R. C. Carter, MSC, USN (Code 04) spoke to the Medical Service Corps Leadership Conference about relationships between Navy Medical R&D and President Clinton's proposals for Health Care Reform.
7 - 8 OCT 93	CDR T. Singer, MSC, USN (Code 41) participated in the Medical Service Corps Leaders Conference, NSHS, Bethesda, MD.
19 OCT 93	Representatives of Krug International visited CAPT R. C. Carter, MSC, USN (Code 04) to discuss their biotechnology capabilities.
22 OCT 93	Dr. Larry Crumm of University of Washington Applied Physics Laboratory briefed CAPT R. C. Carter, MSC, USN (Code 04) and members of his staff regarding sonogram imaging of non-metallic shrapnel.
25-29 OCT 93	Command Inspection of NDRI. Mr. Kip Johnson (Code 00S) accompanied the NMRDC Inspection Team to the Naval Dental Research Institute and conducted a Command Inspection. Only three minor program deficiencies were noted. Mr. Pederson, NDRI's Safety Manager, has a model safety program that other laboratories could look to for guidance.
26 OCT 93	CDR P.D. Kent, MC, USN (Code 45) delivered Navy Blood R&D Program brief at the annual meeting of American Assn. of Blood Banking.
28 - 30 OCT 93	Mr. A. David Spevack (Code 00CC) attended the American Intellectual Property Lawyers Association Annual Meeting in Washington, D.C.
29 OCT 93	CAPT R. C. Carter, MSC, USN (Code 04) attended the BUMED POM-96 kickoff meeting lead by VADM Hagen
1 NOV 93	Mr. Kip Johnson (Code 00S) was transferred to NMRI. He is now tasked with operating the NMRDC and NMRI Safety Programs from the NMRI office.

Date	Significant Event in 1993
Nov 93	Mr. Kip Johnson (Code 00S) attended the 1st BUMED NAVOSH Program Workshop which was conducted by Mr. Ed Schaefer and Mr. Errol Gillette at the Naval Air Station, Jacksonville, FL. This five day workshop provided an intense review of OSHA, JCAHO, NFPA and Navy Safety and Health requirements. The workshop was attended by other BUMED Safety Managers. Group discussions lead to many suggestions and opportunities for all managers to learn ways of meeting these requirements.
NOV 93	NMRDC received the new Hazardous Materials and Safety Instructions from BUMED. These long awaited instructions provided the missing guidance and assigned responsibilities for the many parts of these large and encompassing program areas.
1 - 3 NOV 93	CDR T. Singer, MSC, USN (Code 41) participated in ONR instrument scan project reviews: U. of Illinois, Champaign - Urbana, IL and NAS Pensacola, FL.
3 NOV 93	CAPT R.C. Carter, MSC, USN (Code 04) and others from NMRDC met with CAPT R. W. Gaugler, MSC, USN and others from NMRI to discuss plans for laboratory consolidation.
4 NOV 93	CAPT Carter, MSC, USN (Code 04) attended the Armed Forces Institute of Pathology annual review as an external reviewer
8 - 9 NOV 93	CDR P. D. Kent, MC, USN (Code 45) attended the Army Blood Program Review.
10 NOV 93	All hands reenlistment ceremony for HM2 Carlos Rosario, USN (Code 02C).
12-14 NOV 94	LTC Albert McCullen, VC, USA (Code 00C) attended a meeting of the Association of Primate Veterinarians in Nashville
14-17 NOV 93	LTC Albert McCullen, VC, USA (Code 00C) attended a meeting of the American Association of Laboratory Animal Science in Nashville
18 NOV 93	CAPT J. C. Cecil, III, DC, USN (Code 09) attended the HRO Washington Annual Activity Retreat for COs/XOs, Gaithersburg, MD.

Date	Significant Event in 1993
15 - 18 NOV 93	Mr. A. David Spevack (Code 00CC) combined trip to give lecture on intellectual property and CRADA's at NHRC and attend Federal Laboratory Consortium's Fall 1993 Technology Transfer Meeting in Tulsa, OK.
DEC 93	The Naval Oversight Inspection Unit (NOIU) conducted a formal safety inspection of NAMRU-3. An unsatisfactory grade was issued to the command. They were found deficient in many new safety program areas and acquired many defect points in electrical safety deficiencies noted throughout the command. Two areas where they shined were the very difficult Hazardous Materials and Chemical Hygiene Programs.
DEC 93	Mr. Ravi Kammula (Code 121) reported aboard as AIS Systems Technician.
1 DEC 93	Mr. A. David Spevack (Code 00CC) attended Patent and Trademark Office Day (an annual conference) in Crystal City, VA.
2 DEC 93	CAPT R. C. Carter, MSC, USN (Code 04) briefed Navy Clinical Investigation Program participants, at their annual meeting sponsored by HSETC, about Navy medical R&D and its support for R&D associated with Navy Graduate Medical Education. LTC Albert McCullen, VC, USA (Code 00C) gave a talk to a group at HSETC on "Current Issues in Laboratory Animal Medicine at the Crystal City Marriot.
9 DEC 93	CAPT R. C. Carter, MSC, USN (Code 04) met with Dr. Steve Zornetzer, Director of ONR Life Sciences, to discuss closer coordination in the contest of an ONR reorganization which makes the ONR Life Sciences mission much more similar to the NMRDC mission (integrated 6.1 - 6.3A biotechnology).
13 DEC 93	CAPT R. C. Carter, MSC, USN (Code 04) briefed CAPT Forehand, CINC USNAVEUR Medical Officer, on NMRDC and its relation to CINC concerns.
14 DEC 93	CDR P.D. Kent, MC, USN (Code 45) participated in the Tri-service REFLUPS Milestones III decision meeting at USAMMDA.

Date	Significant Event in 1993
20 DEC 93	CAPT R. C. Carter, MSC, USN (Code 04) and Ms. Eisemann (Code 42) from NMRDC hosted a meeting of Army, Navy and Air Force personnel to initiate coordination of the Defense Women's Health Research Program, in response to FY94 Congressional language and appropriation
22-23 DEC 93	CAPT R. C. Carter, MSC, USN (Code 04) briefed RADM Buckendorf (MED-02) and the N931 Staff regarding NMRDC Engineering Development (6.4) funding plans, in support of the Navy Medical Department POM-96.

COMMAND FUNDED TRAVEL FOR 1993

Date	Code	Travel for 1993
19 JAN 93	44	Mr. A. David Spevack, 1993 East Coast Conference for all office of General Counsel Field Attorneys.
21 JAN 93	01	LCDR S. L. Hayes, MSC, USN, site visit to Wright Patterson AFB, Dayton, OH.
25 JAN 93	41	CDR T. Singer, MSC, USN, ASBREM JTCG-5 meeting (NATIC) and NSMRL site visit.
2 FEB 93	44	Mr. A. David Spevack, lecture on 1.P & CRADA's at NAMRL. 4 FEB 93
8 FEB 93	411	CDR B. Schibly, MC, USN, attend SPEC War Conference Panama City, FL.
13 FEB 93	43	CDR C. J. Schlagel, MSC, USN, attend Army/Navy Infectious Disease Special Working Group Conference, Asborn, VA.
15 FEB 93	01	LCDR Hayes, MSC, USN, STARTS/FL Customer Conference, Charleston, South Carolina.
21 FEB 93	44	Mr. A. David Spevack, 129th Contract Attorneys course at the Judge Advocate Generals school, Charlottesville, VA.
	43	CDR C. J. Schlagel, MSC, USN, Attend JTC-2 Special Working Group, Asburn, VA.
22 FEB 93	41	CDR T. Singer, MSC, USN, ASBREM JTCG-5 (Human Systems Technology) Meeting San Diego, CA.
25 FEB 93	00	CAPT E. T. Flynn, MC, USN, Armed Forces Epidemiological Board Meeting, Dulles Airport.
26 FEB 93	00S	Mr. Kip Johnson, attend Annual Naval Environmental Health Center Workshop, Norfolk, VA.
28 FEB 93	42	CDR J. R. Beddard MSC, USN, attend and speak at Navy Environmental Health Center, Norfolk, VA.
28 FEB 93	21	LT B. Salire, MSC, USN, Congress on Administration American College of Health Care Executives, Chicago, IL.
13 MAR 93	21	LT B. Salire, MSC, USN, Efficiency Review, Jakarta, Indonesia and Manila.

Date	Code	Travel for 1993
14 MAR 93	42	CDR J. R. Beddard, MSC, USN, attend Medical Management of Chemical Casualties course, Aberdeen, MD.
	42	CDR J. R. Beddard, MSC, USN, ONR/NAMRL Electromagnetic Radiations Research Review.
16 MAR 93	00	CAPT E. T. Flynn, MC, USN, Change of Command, NDRI.
22 MAR 93	43	CDR C. J. Schlagel, MSC, USN, attend a three day workshop sponsored by Cambridge Health Tech Institute, Washington, DC.
26 MAR 93	43	CDR C. J. Schlagel, MSC, USN, BUMED IG trip to NAMRU-3 and NAMRU-2.
4 APR 93	00S	Mr. Kip Johnson, attend Plant Technology and Safety Conference, Norfolk, VA.
14 APR 93	411	CDR B. Schibly, MC, USN, Visit Naval Ocean Processing Facility.
25 APR 93	21	LT B. Salire, MSC, USN, attend Standard Personnel Management System Training, Norfolk, VA.
26 APR 93	13	Mr. Philip Cheng Attend the Economic Analysis course, Crystal City, VA.
27 APR 93	41	CDR T. Singer, MSC, USN, workshop on spatial disorientation in helicopters and operational consequences Pensacola, FL.
29 APR 93	00	CAPT E. T. Flynn, MC, USN, Armstrong Laboratory Spring Program Review, Brooks AFB, TX.
2 MAY 93	411	CDR B. Schibly, MC, attend CME course "Current Concepts in Environmental Medicine".
2 MAY 93	45	CDR P. D. Kent, MC, USN, attend 1993 USARIEM "Current Concepts in Environmental Medicine", Boston, MA.
3 MAY 93	41	CDR T.Singer, MSC, USN, Introduction to Medical Intelligence Short Course, Frederick, MD.

Date	Code	Travel for 1993
10 MAY 93	421	Ms. Lisa Beth Harris, attend 6th Annual Navy Scientific and Technical Information Program (STIP) Workshop, Seattle, WA.
	41	CDR T. Singer, MSC, USN, develop 6.1 - 6.3 spatial disorientation program, Pensacola, FL.
16 MAY 93	21	LT B. Salire, MSC, USN, Total Force Manpower Management Course, Norfolk, VA.
17 MAY 93	42	CDR J. R. Beddard, MSC, USN, Naval Medical Research Review, San Diego, CA and Dayton, OH.
18 MAY 93	02	CDR J. C. McDonough, MSC, USN, Middle Atlantic Health Congress Conference Atlantic City, New Jersey.
24 MAY 93	45	CDR P. D. Kent, MC, USN, Navy Science Assistance Program all Theater Seminar, Silver Spring, MD.
1 JUN 93	00S	Mr. Kip Johnson, Conduct Annual Occupational Safety and Health Management Evaluation at NHRC.
11 JUN 93	23	Ms. Joan Speake-Ponow, provide management control program training, also standards of conduct government ethics training, NAMRU-2.
6 JUL 93	45	CDR P. D. Kent, MC, USN, Annual Scientific Meeting Undersea and Hyperbaric Medical Society Halifax, Nova Scotia, Canada.
29 JUL 93	00B	CAPT W. M. Parsons, MSC, USN, attend Navy Environmental Health Center Change of Command, Norfolk, VA.
7 AUG 93	21	LT B. Salire, MSC, USN, Training NAMRU-2 and NAMRU-2 DET.
17 AUG 93	00B	CAPT W. M. Parsons, MSC, USN, attend the Joint Technology Working Group Aberdeen, MD.
18 AUG 93	43	CDR C. J. Schlagel, MSC, USN, attend JTCG sponsored Defense Modeling Symposium, Aberdeen, MD.
	42	CDR J. R. Beddard, MSC, USN, Defense Modeling Symposium, Aberdeen.

Date	Code	Travel for 1993
7 SEP 93	411	LCDR L. Fenton, MC, USNR, NAMRL Management Meeting, Mobile, AL.
	41	CDR T. Singer, MSC, USN, NAMRL Management Meeting, Pensacola, FL, also Mobile, AL.
	412	LCDR P. Knechtges, MSC, USN, attend NAMRL's FY-94 Management Retreat, Mobile, AL.
8 SEP 93	OOC	LTC A. McCullen, VC, USA, attend National Capital Area Branch American Association of Laboratory Animal Science, Ellicott City, MD.
13 SEP 93	21	LT B. Salire, MSC, USN, CO/XO Officer Symposium, Richmond, VA.
4 OCT 93	00A	HMCM K. M. Pedersen, USN, Surgeon General Conference, Reston, VA.
10 OCT 93	00	CAPT E. T. Flynn, MC, USN, NMRDC Commanding Officer's Conference, NAMRL Pensacola, FL.
	00B	CAPT W. M. Parsons, MSC, USN, NMRDC Commanding Officer's Conference, NAMRL Pensacola, FL.
	02	CDR J. C. McDonough, MSC, USN, NMRDC Commanding Officer's Conference, NAMRL Pensacola, FL..
	21	LT B. Salire, MSC, USN, NMRDC Commanding Officer's Conference , NAMRL Pensacola, FL.
	04	CAPT R. C. Carter, MSC, USN, NMRDC Commanding Officer's Conference , NAMRL Pensacola, FL.
	41	CDR T. Singer, MSC, USN, NMRDC Commanding Officer's Conference , NAMRL Pensacola, FL.
	412	LCDR P. Knechtges, MSC, USN, NMRDC Commanding Officer's Conference , NAMRL Pensacola, FL.
	42	Ms. Christine Eisemann, NMRDC Commanding Officer's Conference , NAMRL Pensacola, FL.
	43	CDR C. J. Schlagel, MSC, USN, NMRDC Commanding Officer's Conference , NAMRL Pensacola, FL.

Date	Code	Travel for 1993
10 OCT 93	45	CDR P. D. Kent, MC, USN, NMRDC Commanding Officer's Conference , NAMRL Pensacola, FL.
17 OCT 93	OOC	LTC A. McCullen, VC, USA, Conduct Navy IG of NAMRL and NMRI DET.
18 OCT 93	43	CDR C. J. Schlagel, MSC, USN, attend the Navy Epidemiology Board MTG, NORVA/to attend the Armed Forces Epidemiology Board MTG, Norfolk, VA and Ft. Bragg, NC.
	00B	CAPT W. M. Parsons, MSC, USN, the Navy Epidemiology Board MTG, NORVA/to attend the Armed Forces Epidemiology Board MTG, Norfolk, VA and Ft. Bragg, NC.
19 OCT 93	411	LCDR L. Fenton, MC, USNR, NCSC Briefing, Panama City, FL.
20 OCT 93	41	CDR T. Singer, MSC, USN, site visit with Dr. H. Hawkins University of Illinois, Urbana, Il, then to NAMRL Pensacola, FL.
23 OCT 93	21	LT B. Salire, MSC, USN, NDRI Command Inspection.
24 OCT 93	00S	Mr. Kip Johnson, Command Inspection NDRI.
25 OCT 93	00A	HMCM K. M. Pedersen, USN, Command Inspection of NDRI.
	09	CAPT J.C. Cecil, III, DC, USN, Command Inspection NDRI.
	01	LCDR S. L. Hayes, MSC, USN, Command Inspection NDRI.
	02	CDR J. C. McDonough, MSC, USN, Command Inspection NDRI.
	OOC	LTC A. McCullen, VC, USA, Command Inspection of NDRI.
	21	LT B. Salire, MSC, USN, Command Inspection NDRI.
	23	Ms. Joan Speake-Ponow, Command Inspection NDRI.
31 OCT 93	412	LCDR P. Knechtges, MSC, USN, Conference on Occupational Exposure Databases, presented paper, McLean, VA.

Date	Code	Travel for 1993
1 NOV 93	OOC	LTC A. McCullen, VC, USA, Conduct Navy IG inspection at NAVHOSP Oakland and NAVHOSP San Diego.
8 NOV 93	411	LCDR L. Fenton, MC, USNR, Special Operations Research and Development Command Meeting, Tampa, FL.
8 NOV 93	45	CDR P. D. Kent, MC, USN, the USAMRDC Combat Casualty Care Research Program Blood Program Review, Calverton, MD.
9 NOV 93	411	LCDR L. Fenton, MC, USNR, the Society for Neuroscience 23rd Annual Meeting, Washington, DC.
12 NOV 93	OOC	LTC A. McCullen, VC, USA, APV & AALAS MTG in Nashville, TN.
14 NOV 93	00S	Mr. Kip Johnson, attend BUMED Safety Professionals Workshops, Jacksonville
	02	CDR J. C. McDonough, MSC, USN, Conference/American Academy of Medical Administrators, also AMSAS San Antonio, TX.
	21	LT B. Salire, MSC, USN, Drug and Alcholo Program Advisor Training, Norfolk, VA.
	44S	Ms. Allison S. O'Dell, the Federal Laboratory Consortium, Palms Springs, CA.
15 NOV 93	44	Mr. A. David Spevack, the Federal Laboratory Consortium, Palms Springs
17 NOV 93	01	LCDR S. L. Hayes, MSC, USN, the American Academy of Medical Administrator's meeting, San Antonio, TX.
18 NOV 93	13	Mr. Philip Cheng, the Property Management Document Tracking Seminar, Bethesda, MD.
22 NOV 93	12	LT J. Barnes, III, MSC, USN, attend training course "Negativity in the Workplace".
1 DEC 93	44	Mr. A. David Spevack, P.T.O. Day Annual Conference, Crystal City, VA.
	41	CDR T. Singer, MSC, USN, site visit at University of Illinois and site visit at NAMRL

Date	Code	Travel for 1993
31 DEC 93	43	CDR C. J. Schlagel, MSC, USN, site visit to NAMRU-3.

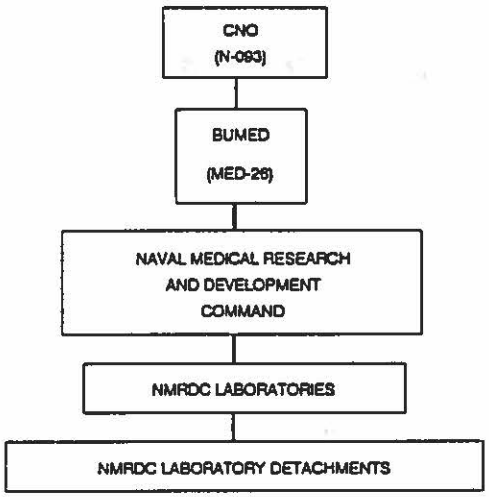
COMMAND FUNDED TRAINING FOR 1993

Date	Name	Code	Training for 1993
JAN 93	LT J. Barnes, III, MSC, USN	12	Basic LAN Administration
FEB 93	Ms. Jane Hoover	01A	WordPerfect 5.1 Power Tips for Intermediate Users
	Mr. A. David Spevack	44	129th Contract Attorney's Course
MAR 93	CAPT R. Chaput, MSC, USN	09	Achievement Factors
	CAPT E. T. Flynn, MC, USN	00	Achievement Factors
	Ms. Joan Speake-Ponow	23	Achievement Factors
	Ms. Joan Speake-Ponow	23	Self-Esteem and Peak Performance for Women
	Ms. Renee Singleton	211	Self-Esteem and Peak Performance for Women
	Ms. Joan Speake-Ponow	23	How to Manage Priorities and Meet Deadlines
APR 93	CAPT J. C. Cecil, III, DC, USN	09	Civilian Separation Incentives and VERA
	Ms. Doris Ryan	03B	Public Affairs Policy & Regulations
	Mr. Philip Cheng	13	Economic Analysis
	Ms. Vicky Crowder	42S	6th Annual Seminar for Executive Secretaries
	Ms. Vicky Crowder	42S	Developing Your Image as a Successful Woman
	Ms. Beth Harris	421	Developing Your Image as a Successful Woman
	Ms. Joan Speake-Ponow	23	Developing Your Image as a Successful Woman
	Ms. Jane Hoover	01A	The Indispensable Assistant

Date	Name	Code	Training for 1993
	Ms. Allison O'Dell	44S	The Indispensable Assistant
MAY 93	Christine Eisemann	42	Managing Within a Culturally Diverse Workplace
	Ms. Maureen Young	41A	Statistics
JUN 93	Ms. Beth Harris	421	The Exceptional Assistant
	Ms. Jane Hoover	01A	Defense Regional Interservice Support
	Ms. Doris Ryan	03B	Introduction to DBase III +
JUL 93	Ms. Vicky Crowder	42S	Powerful Communication Skills for Women
	Ms. Beth Harris	421	Powerful Communication Skills for Women
	Ms. Allison O'Dell	44S	Powerful Communication Skills for Women
	Ms. Rene Singleton	211	Powerful Communication Skills for Women
	Ms. Joan Speake-Ponow	23	Powerful Communication Skills for Women
	LCDR P. Knechtges, MSC, USN	412	Contracting Officer's Technical Representative
	Mr. A. David Spevack	44	CRADA'S: Current Status and Issues
	CAPT S. Weinberg, MSC, USN	451	Contracting Officer's Technical Representative
	Ms. Marueen Young	41A	How to Manage Stress: A Woman's Workshop
AUG 93	Ms. Deborah Pilkerton	02A	Life Balance Workshop for Working Women
	Ms. Maureen Young	41A	DON Systems Acquisition Overview

Date	Name	Code	Training for 1993
OCT 93	LCDR S. L. Hayes, MSC, USN	01	Defense Regional Interservice Support
	Ms. Doris Ryan	03B	Project Management for Publications
	Mr. A. David Spevack	44	American Intellectual Property Law Association 93'
	Ms. Renee Singleton	211	Black Women's Seminar
NOV 93	Ms. Christine Eisemann	42	Introduction to DBase III +
	Ms. Joan Speake-Ponow	23	Managing Negativity in the Workplace
DEC 93	Ms. Doris Ryan	03B	Editing for Science and Technology
	Ms. Doris Ryan	03B	Facilitating the Quality Improvement Process
	Ms. Beth Harris	421	Facilitating the Quality Improvement Process

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND ORGANIZATION



The Commanding Officer, NAVMEDRSCHDEVCOM is subject to the area and regional coordination authority of the Commandant, Naval District Washington, DC. The National Naval Medical Center provides host support.

Functions as directed by the Chief, Bureau of Medicine and Surgery (BUMED)

a. Command Navy Medical Department research and development laboratories, and support their Research and Development Test and Evaluation (RDT&E) missions by providing and exercising accountability for manpower, funds, facilities, and equipment resources.

b. Direct, plan, program, budget, and document the Navy Medical research and development program.

c. Determine the requirements for, and recommend the procurement, training, assignment, and distribution of research and development personnel.

d. Perform staff functions for, and advise BUMED on RDT&E matters.

e. Provide professional medical and dental guidance in the planning of Navy and Marine Corps weapons systems, life support systems, and personnel protection.

f. Implement Medical Department policies and oversee the use and protection of human subjects utilized in research and development studies conducted by, within, and for Department of the Navy (DON).

g. Direct and coordinate efforts to ensure a smooth transition of research results and other activities as required to support BUMED's mobilization missions.

h. Execute Medical Department responsibilities in relation to the use and protection of animals utilized in research and development studies conducted by, within, and for DON.

i. Develop and maintain mechanisms to ensure rapid and effective dissemination of research derived information to all appropriate end users.

j. Coordinate research efforts by subordinate activities with other Navy commands and offices, other government agencies, civilian organizations, and foreign governments.

k. Provide or undertake such other functions that may be authorized or directed.

Component Activities

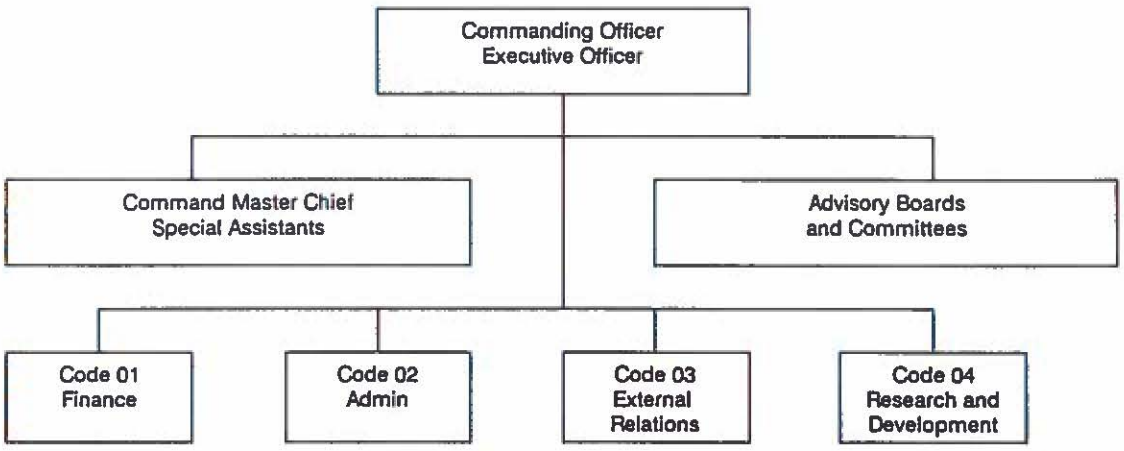
Echelon IV

- Naval Aerospace Medical Research Laboratory, Pensacola, FL
- Naval Biodynamics Laboratory, New Orleans, LA
- Naval Dental Research Institute, Great Lakes, IL
- Naval Health Research Center, San Diego, CA
- Naval Medical Research Institute, Bethesda, MD
- Naval Submarine Medical Research Laboratory, Groton, CT
- U. S. Naval Medical Research Unit No. 2, Jakarta, Indonesia
- U. S. Naval Medical Research Unit No, 3, Cairo, Egypt

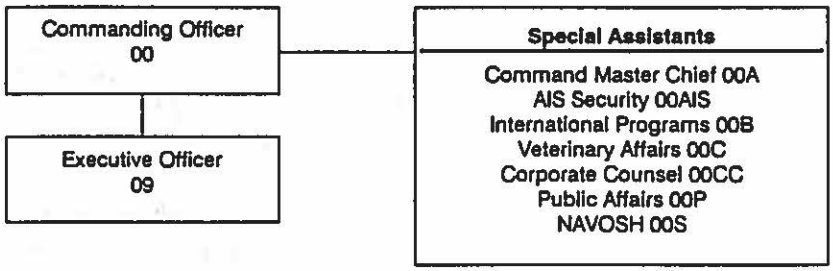
Echelon V

- Naval Dental Research Institute Detachment, Bethesda, MD
- Naval Dental Research Institute Detachment, San Antonio, TX
- Naval Medical Research Institute Detachment, Lima, Peru
- Naval Medical Research Institute Toxicology Detachment, Wright-Patterson Air Force Base, OH
- U. S. Naval Medical Research Unit No. 2 Detachment, Manila, RP

NMRDC COMMAND ORGANIZATION



OFFICE OF THE COMMANDING OFFICER (00)



The Commanding Officer is tasked with the responsibility for effective and economical organization and management of Medical Department RDT&E programs. The Commanding Officer has authority to fulfill the duties and obligations prescribed in current manuals, orders, regulations and directives. The Commanding Officer, at his discretion, and when not contrary to existing laws or regulations, may delegate authority to subordinates to execute assigned tasks. This delegation of authority will in no way relieve the Commanding Officer of the responsibility for the safety, well-being, and effectiveness of the Command.

In the Temporary absence of the Commanding Officer, The Executive Officer will act as the Commanding Officer. In the temporary absence of both, the Department Director next in rank and seniority, who is permanently assigned to the Command will act as the Commanding Officer.

Special Assistants to the Commanding Officer

Command Master Chief (00A)

- Assists and advises the Commanding Officer on all enlisted personnel matters.
- Assists and advises Echelon IV Commanding Officers and Echelon V Officers-in-Charge on enlisted personnel matters with emphasis on enlisted personnel development, distribution and utilization throughout the spectrum of RDT&E mission execution.
- Coordinates with Command Master/Senior Chiefs of the Echelon IV and Echelon V activities to ensure that morale, personnel services, and welfare are maintained at the highest possible level.
- Maintains close liaison and coordination with the Force Master Chief of the Navy Medical Department and with the Enlisted Personnel Distribution Branch of the Bureau of Naval Personnel (BUPERS).

Special Assistant for AIS Security (00AIS)

- Serves as the Command's Automated Information Security (AIS) Officer for all matters regarding the protection of AIS, networks, and computer resources against accidental or intentional destruction, unauthorized disclosure, denial of service, and unauthorized modification.
- Ensures compliance with all applicable regulations and policies concerning the procurement and maintenance of AIS.

Special Assistant for International Affairs (00B)

- Serves as the principal Command point-of-contact for OCONUS field activities.
- Advises the Commanding Officer on OCONUS administrative and programmatic issues.
- Coordinates OCONUS laboratory activities with appropriate State Department, Department of Defense (DOD), CNO, and BUMED officials.
- Is a collateral duty function of the Research Area Manager for Infectious Diseases.

Special Assistant for Veterinary Medicine (00C)

- Assists and advises the Commanding Officer on veterinary medicine and animal care and use matters.
- Assists and advises Echelon IV Commanding Officers and Echelon V Officers-in-Charge on the operation of an effective animal care and use program.
- Conducts Command Inspection visits to ascertain compliance with all Federal, DOD, and Navy animal care and use regulations and guidelines.
- Maintains liaison with Office of the Chief, U. S. Army Veterinary Corps to achieve adequate veterinary personnel staffing.

Corporate Counsel (00CC)

- Serves as an Attorney within a component office of the Office of the General Counsel of the Navy and as the principal advisor to the Commanding Officer for matters related to inventions, patents and cooperative agreements with other governmental and commercial organizations.
- Assists and advises Echelon IV Commanding Officers and Echelon V Officers-in-Charge on matters related to inventions, patents and cooperative agreements with other governmental and commercial organizations.
- Provides legal advice and services to NAVMEDRSCHDEVCOM Offices and the offices of the

subordinate commands on various issues arising from the operation of a medical research program.

Special Assistant for Public Affairs (00P)

- Develops, writes, edits, and supervises all stages of the preparation of promotional and recruiting materials for the Command and its subordinate laboratories. These materials include a regularly published Newsletter, and various feature articles on subjects related to the programs or operation of the Command or its subordinates.
- Develops and updates as necessary, Command briefing packages and Annual Reports to sponsors.
- Assists in the planning and arrangements for Command meetings, conferences and functions.
- Serves as the principal Command point of contact for interactions with the news media and general public regarding the programs of the Command. Acts as liaison with the Public Affairs Offices of other Navy and governmental activities.

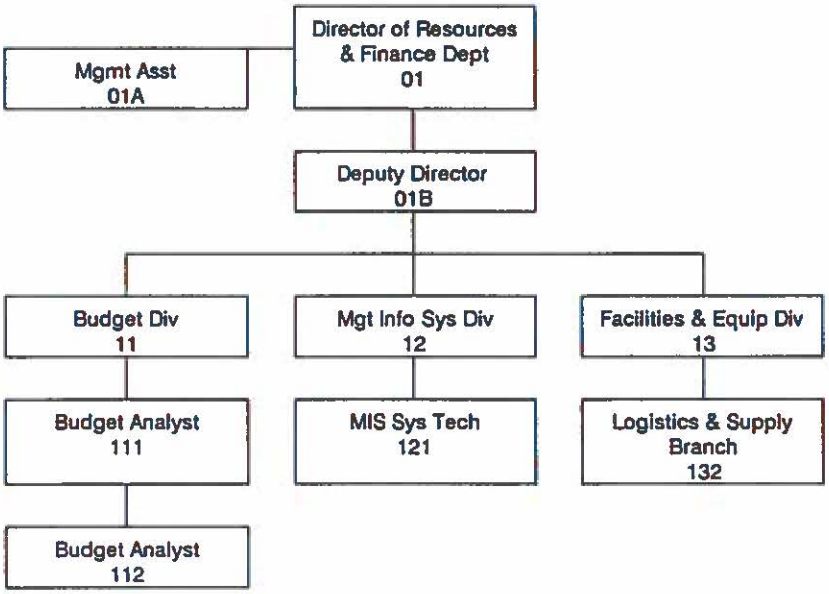
Special Assistant for NAVOSH (00S)

- Advises the Command on oversight responsibilities to ensure that Echelon IV and V commands are in compliance with Navy Occupational Safety and Health Inspection (NOSHIP) deficiency abatement programs.
- Advises subordinate commands on matters pertaining to Navy Occupational Safety and Health (NAVOSH).
- Reviews and consolidates subordinate commands' NAVOSH and NOSHIP reporting requirements with a focus on identifying trends for actions required in support of laboratory safety and health programs.
- Serves as the Command Safety Officer.

Office of the Executive Officer (09)

- The primary function of the Executive Officer is to assist and advise the Commanding Officer in all matters that pertain to the mission of the Command. All orders issued by the Executive Officer shall be regarded as proceeding from the Commanding Officer and shall govern all persons within the Command.

OFFICE OF THE DIRECTOR OF RESOURCE MANAGEMENT AND FINANCE DEPARTMENT (01)



Director of Resource Management/Comptroller (01)

- The Director of Finance/Comptroller reports directly to the Commanding Officer through the Executive Officer, and serves as the principle staff advisor to the Commanding Officer in the interpretation of guidance from higher authority to effectively direct, manage, and coordinate the provision of financial, and manpower resources for the headquarters and subordinate commands. Assists the Commanding Officer in monitoring and managing subordinate commands and activities in the areas of resource allocation, facilities and supply matters. Advises and assists the Commanding Officer in responding to higher authority concerning budgets and the execution of resources.
- Appointed in writing as the Command Allotment Administrator and acts as Program Element Manager for RDT&E,N Program Element 65861, "Management Support" and "65862 Naval Medical Instrumentation & Material Support".
- Organizes approved financial plans into fiscal programs and provides recommendations on major alternatives using financial data to enhance the program decision process and insure maximum use of available resources.
- Prepares the Medical Department RDT&E budget by coordinating fund estimates and justifications for resources.
- Develops and maintains budgetary data acquisition and retrieval systems.
- Maintains fiscal controls based on reprogramming actions.

- Maintains liaison with organizations involved in RDT&E budget formulation and execution i.e. CNO, Office of Naval Research (ONR), and BUMED.
- Monitors field activity performance for compliance with proposed financial plans and recommends funds authorization adjustment as necessary.
- Provides BUMED-01 with programming data for RDT&E projects that will become operational and affect O&M,N funding.
- Manages manpower functions related to budget formulation and execution which include: management of total force manpower allowances, coordination of program objectives memorandum (POM) issues, manpower change requests, manpower issues in conjunction with commercial activities (CA), efficiency review (ER) programs and staffing standards.
- Oversees and coordinates the maintenance of civilian time and attendance records, submission of these records to Naval Regional Finance Center, and assistance of employees in interactions with Finance Center personnel regarding leave and pay issues.

Management Assistant to the Director of Resource Management and Finance Department (01A)

- Provides administrative support to the Director, Deputy Director and Budget Analysts for the Resource Management and Finance Department. Provides administrative support for the Director and the AIS Systems Technician of the Automated Information Systems Division, and the Director of the Facilities and Equipment Management Division.

Deputy Director of Resources and Finance Department (01B)

- Supervises personnel assigned to the Department.
- Assumes the duties and responsibilities of the Director when the Director is absent from the Command. When acting in that capacity, the Deputy shall have full authority to function on behalf of the Director.
- This position will normally be a collateral assignment of the Budget Officer.

Budget Division (11)

Budget Officer (11)

- Coordinates and analyzes program planning documents from higher authority, assembles medical RDT&E planning data and submits required SYDP input.

- Translates approved programs into a financial plan and formulates annual supplemental and special estimates for submission by the Commanding Officer.
- Requests estimates of fiscal requirements from field activities and program managers, reviews and analyzes their response, and prepares budgets estimates, special exhibits, justification material as directed by higher authority.
- Maintains status of funds control in the budgetary execution process.
- Responsible for the management of Managing to Payroll policy for the Command and the subordinate activities.
- Supervises personnel assigned to the Budget Division.
- Serves as the Naval Medical Research and Development Command Timekeeper, and maintains all records associated with this position.

Budget Analysts (111) and (112)

- Coordinates and analyzes program planning documents, assembles medical RDT&E planning data for review by budget officer.
- Translates approved programs into a financial plan and formulates annual supplemental and special estimates for submission to the Budget Officer.
- Requests estimates of fiscal requirements from field activities and program managers, reviews and analyzes their response, and prepares budgets estimates, special exhibits, and budget justification materials.
- Maintains status of funds control in the budgetary execution process.

Automated Information Systems Division (12)

Director Automated Information Systems Division (12)

- Manages all Automated Information Systems (AIS) for the Command.
- Directly manages AIS functions including the development of policies and programs involving the procurement, distribution, utilization and maintenance of AIS equipment.
- Serves as the Command AIS Security Officer.

AIS Systems Technician (121)

- Provides AIS technical support to all departments.

Facilities and Equipment Management Division (13)

Director of Facilities and Equipment Management (13)

- Acts as Assistant Program Element Manager for RDT&E,N Program Element 65862N, "Navy Medical Instrumentation and Material Support."
- Manages the facilities planning, programming, and budgeting actions. Monitors program execution for Military Construction, Facilities Special Projects and the Shore Facilities planning System.
- Serves as liaison with NATNAVMEDCEN Public Works Division for NAVMEDRSCHDEVCOM required alteration, construction, or repair special projects, excluding routine repair and maintenance trouble calls.
- Assists the Administrative Officer with NAVMEDRSCHDEVCOM space assignments and any facility alterations and utility service changes.
- Manages the general purpose equipment planning, programming, and budgeting actions. Monitors program execution of equipment procurement, utilization, and redistribution. Justifies and initiates procurement of general purpose equipment for NAVMEDRSCHDEVCOM.
- Manages, coordinates and directs the provision of supply and logistics support to the Command, ordering and processing the delivery of non-expendable supplies, maintaining the Plant Property and Minor Property Accounts, and obtaining and managing the stock of expendable supplies for the Command.
- Directs all operating management support for the efficient operation of the facilities of the Command including space utilization management, provision and service of utilities in the Command offices, management and coordination of necessary minor repairs to utilities or equipment. This office has primary responsibility for general coordination with the host Command for services provided under the Host/Tenant agreement.
- Provides necessary coordination for the submission for information, or the proper review and approval of manuscripts generated in the subordinate laboratories.
- Manages the Information System Program (ISP) for NAVMEDRSCHDEVCOM and subordinate activities. Serves as liaison with Naval Medical Information Management Center (NMIMC) for RDT&E automated data (ADP) processing matters. Serves as the Executive Agent for NAVMEDRSCHDEVCOM ISP Policy Board, the NAVMEDRSCHDEVCOM ADP Security Officer and the manager of in-house ADP assets.

Facilities and Equipment Div (13)

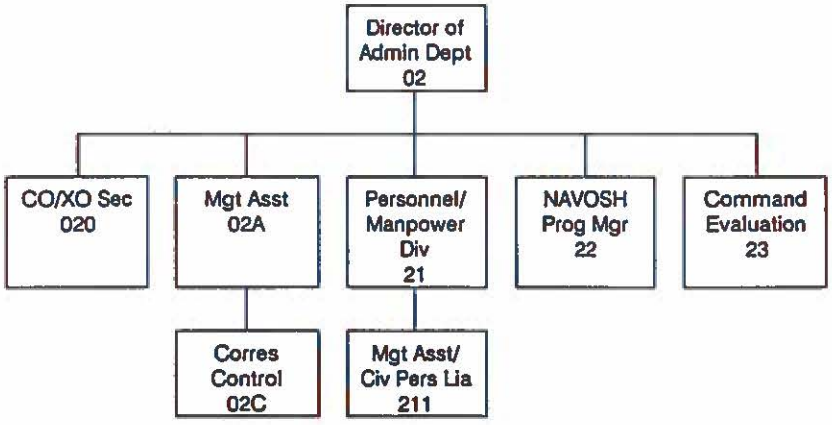
Facilities and Equipment Management Branch (131)

- Assists the Director of Facilities and Equipment Management in the management and oversight of facilities, equipment, and information systems, with primary emphasis on facilities planning.
- Assumes the duties and responsibilities of the Director in his absence. As the acting Director, He/she shall have full authority to function in behalf of the Director in all facilities, equipment, and information system matters.

Logistics and Supply Branch (132)

- Provides supply and logistics support to the Command, ordering and processing the delivery of non-expendable supplies, maintaining the Plant Property and Minor Property Accounts, and obtaining and managing the stock of expendable supplies for the Command.
- Provides operating management support for the efficient operation of the facilities of the Command including space utilization management, provision and service of utilities in the Command offices, management and coordination of necessary minor repairs to utilities or equipment. Provides general coordination with the host Command for services provided under the Host/Tenant agreement.

OFFICE OF THE DIRECTOR OF ADMINISTRATION (02)



Director of Administration (02)

The Director for Administration provides a full range of administrative, personnel and managerial guidance for the entire Command and subordinate activities. The Director for Administration is the principal staff advisor to the Commanding Officer, Executive Officer, other Directorates, and subordinate commands for all matters, related to

the Command Personnel and Administrative Management; provides administrative and organizational guidance in all administrative management matters, including general administration, personnel administration, disciplinary/legal proceedings, correspondence and records management, recurring reports, command organization, and manpower management. The Director for Administration serves as the Command Security Manager. The Directorate for Administration consists of the Personnel Division.

Commanding Officer's Secretary (020)

- Serves as the executive secretary for the Commanding Officer, Executive Officer and the Command Master Chief.

Management Assistant (02A)

- Supervises the management of the Command Correspondence Control and Command Records System.
- Provides administrative support to the Director of Administration.
- Serves as the custodian of Command classified materials.

Correspondence Control (02C)

- Manages the Command Correspondence Control and Command Records Systems. Provides advice and assistance to the Command on all matters pertaining to the receipt, tracking and processing of all Command correspondence, message traffic and the maintenance of necessary Command files.
- Manages and maintains the Command Directives System.
- Oversees the operation of the general office functions of the Command.
- Processes all military leave, military pay and disbursing actions.
- Updates and maintains the Standard Personnel Management System (SPMS) for the Command and subordinate commands.

Personnel Division (21)

Division Director (21)

- Manages, coordinates and directs administrative support to the Command for all military personnel matters including the maintenance and administration of military personnel records, processing of military leave, all aspects of the administration of travel and travel claims, military pay and disbursing actions, processing of military awards, coordination of transfers and other actions with the Bureau

of Naval Personnel (BUPERS), and other routine personnel correspondence and actions.

- Manages, coordinates and directs administrative support to the Command for all civilian personnel matters including the civilian personnel classification, recruitment, promotion or termination processes; coordination of civilian employee relations programs; processing of civilian evaluations and incentive awards, processing of routine civilian personnel actions, training activities, and implementing various Navy-wide personnel programs in coordination with BUMED and other appropriate offices.
- Advises the Commanding Officer and subordinate commands on policies and procedures that govern the assignment, distribution and utilization of officer, enlisted and civilian personnel.
- Maintain liaison and close coordination with BUPERS and BUMED on matters which affect the assignment and distribution of military personnel.
- Evaluates field activity Position Management Programs and develops recommendations to improve their position management performance.
- Manages the Command's mobilization planning and contingency readiness program, reviewing all documents from fields activities, and responding to requirements of higher authority as necessary.

Management Assistant/Civilian Personnel Liaison (211)

- Coordinates the administrative support to the Command for all military personnel matters, including:
  - All necessary coordination with the Personnel Support Detachment, Bethesda for the maintenance and administration of military personnel records, all aspects of the administration of travel and travel claims.
  - All internal Command support to attached personnel and personnel of the subordinate laboratories for processing of military awards, coordination of transfers and other actions with the Naval Military Personnel Command, and other routine personnel correspondence and actions.
- Manages, coordinates and directs administrative support to the Command for all aspects of civilian and military Temporary Additional Duty travel including the preparation of orders; country clearance procedures, where required; and the necessary interactions with the Personnel Support Detachment, Bethesda for obtaining tickets and advanced per diem and for the processing of travel claims.
- Coordinates the administrative support to the Command for all civilian personnel matters, including:

- All necessary coordination with the Human Resources Office, Washington (HRO-W) for administration of the civilian personnel classification, recruitment, promotion or termination processes; coordination of civilian employee relations programs; and processing of civilian evaluations and incentive awards.

- All internal Command support to civilian employees of the Command and those of the subordinate laboratories for processing of routine civilian personnel actions, training activities, and implementing various Navy-wide personnel programs in coordination with BUMED and other appropriate offices.

- Provides administrative support to the division Director.

NAVOSH Program Manager (22)

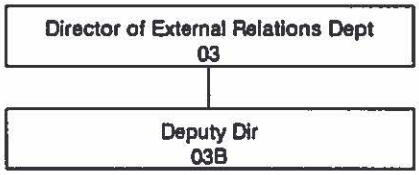
- Advises the Command on oversight responsibilities to ensure that Echelon IV and V commands are in compliance with Navy Occupational Safety and Health Inspection (NOSHIP) deficiency abatement programs.
- Advises subordinate commands on matters pertaining to Navy Occupational Safety and Health (NAVOSH).
- Reviews and consolidates subordinate commands' NAVOSH and NOSHIP reporting requirements with a focus on identifying trends for actions required in support of laboratory safety and health programs.
- Serves as the Command Safety Officer.

Command Evaluation Division (23)

- Manages, coordinates, and directs the Management Control, Command Evaluation, and Naval Command Inspection programs of the headquarters command and field activities. Provides advice and assistance to the Command on all matters pertaining to these programs.
- Coordinates and conducts management control reviews on programs/functions with potential for waste, fraud, and abuse.
- Evaluates the effectiveness of field activities Management Control, Command Evaluation, and Naval Command Inspection programs. Develops recommendations in response to noted program deficiencies and ensures that corrective actions are implemented in a manner consistent with the intent of stated recommendations.
- Coordinates and tracks field activity responses to Command Inspection Team recommendations and monitors compliance with all external review and inspection processes of NAVMEDRSCHDEVCOM field activities.

- Advises Echelon IV and Echelon V command on matters pertaining to the Command Evaluation, Management Control, and Naval Command Inspection programs.

EXTERNAL RELATIONS DEPARTMENT (03)



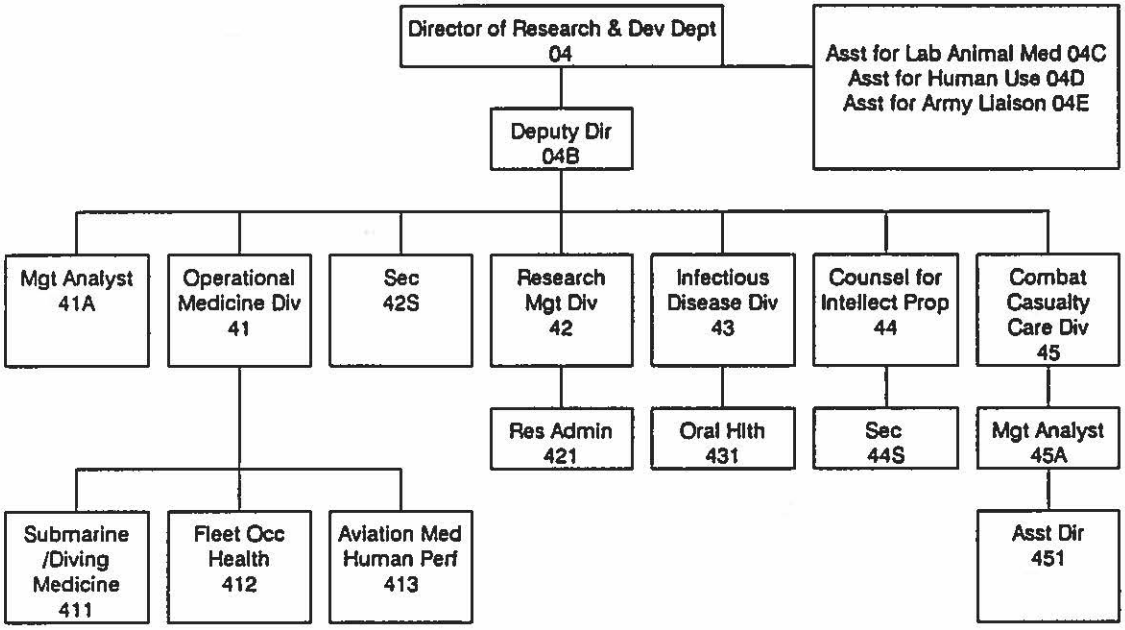
Director of External Relations Department (03)

- Serves as the Command point of contact for all issues regarding the long-range and strategic planning of the Command's RDT&E programs, external relations with military and civilian agencies, and the integration of these plans with the total operations of the headquarters and the individual laboratories.
- Analyzes current Navy medical needs, and the ability of NAVMEDRSCHDEVCOM to meet those needs through in-house and contract programs and within the constraints of projected resources and scientific capabilities. Develops and maintains the currency of the Command's long-range corporate goals and marketing objectives for the research program, and provides direction and guidance to the laboratories in the development of their individual long-term plans.
- Defines, plans and facilitates the appropriate integrations of biomedical aspects of advanced and developing Navy weapons systems in NAVMEDRSCHDEVCOM programs, and coordinates these programs with other Navy and Contract RDT&E organizations.
- Serves as the Command liaison with the DOD Laboratory and Research Center community, the Navy requirements and technical communities, the academic engineering community, the Fleet, and industry.
- Serves as the Command representative to the Navy Science Assistance Program (NSAP), to ensure the timely transfer of pertinent Fleet operational problems to the biomedical research community, and to facilitate full NAVMEDRSCHDEVCOM and laboratory response to these issues.
- Serves as the Command representative for legislative affairs.
- Serves as the Command point of contact for technology transfer.

Deputy Director of External Relations (03B)

- Plans and develops a wide variety of reports, briefs and publications concerning the activities of the Command and its laboratories.
- Develops informational and communication marketing strategies for program sponsors and external customers.
- Monitors the media for issues pertaining to medical research and development.
- Serves as the Special Assistant for Public Affairs.

OFFICE OF THE DIRECTOR OF RESEARCH AND DEVELOPMENT (04)



Director of Research and Development (04)

- Directs the development, management, evaluation and documentation of in-house and contract RDT&E programs in response to identified Navy and Marine Corps needs and requirements.
- Formulates budgets for Research, Exploratory Development, Advanced Development and Engineering Development programs.
- Exercises research program quality control and assures responsiveness to RDT&E needs through the establishment, management, and support of review panels and technical workshops.
- Directs the preparation of briefing material and program documentation required by higher authority.
- Initiates and maintains scientific liaison and coordination with other governmental and non-governmental organizations

with the purpose of achieving program coordination, avoiding duplication and exploiting existing R&D capabilities to meet Navy needs.

- Reviews and approves in-house and contract RDT&E proposals.
- Develops scientific and technical instructions and guidelines for in-house and contract research and development.
- Acts as the Scientific Program Element Manager for all RDT&E,N 6.1 through 6.4 assigned Program Elements.
- Prepares responses to Congressional inquiries and DOD-organized apportionment issues on research program content and funding levels.
- Formulates scientific and technical management recommendations for the Commanding Officer.

Special Assistants to the Director

Assistant for Lab Animal Medicine (04C)

- Serves as principal assistant to the Director of Research and Development on all laboratory animal medicine issues and the use of laboratory animals in research.

Assistant for Human Use (04D)

- Serves as principal assistant to the Director of Research and Development on all issues related to the use of humans in research activities.

Assistant for Army Liaison (04E)

- Serves as the liaison officer to the U. S. Army (USA) Medical Research and Development Command and is responsible for integrating the Navy scientific program areas where the USA serves as executive agent for DoD (Infectious Disease, Chemical and Biological Warfare Defense, and Combat Dentistry.)

Deputy Director for Research and Development (04B)

- Serves as the Deputy to the Director of Research and Development in the near-term planning, coordination, execution, and analysis of Command RDT&E programs; and for the establishment of new programs. Participates fully in the maintenance of the Command Strategic Plan.
- Assumes the duties of the Director of Research and Development in the absence of that official.

Operational Medicine Division (41)

Division Director (41)

- Directs the planning and administration of research and development efforts involving operational medicine areas.

Management Analyst (41A)

- Provides program and administrative support to the Operational Medicine Division.

Research Area Manager, Submarine and Diving Medicine (411)

- Coordinates the planning and administration of research and development efforts that involve the unique medical aspects of submarine and diving operations in support of specific underwater operational goals.
- Coordinates the medical RDT&E diving and submarine program with naval requirements.
- Maintains liaison with the appropriate officials of the BUMED, CNO, Naval Sea Systems Command, ONR, Office of Naval Technology, and other activities concerned with underwater technology.
- Monitors in-house and contract programs in submarine and diving medicine, and advises laboratories on requirements and priorities.
- As an appointed DON representative, serves as an active participant in international scientific exchanges and cooperation agreements involving diving and submarine medical research and development.
- Assists the Research Area Manager for Aerospace Medicine and Human Performance (NAVMEDRSCHDEVCOM-44) in the Joint Technology Coordinating Group (JTCG) for Human Systems Technology in the area of Environmental Physiology.

Research Area Manager, Fleet Occupational Health (412)

- Coordinates the planning, development, support, and administration of medical research in characterizing and evaluating occupational hazards from chemical, physical, and biological stresses in operational environments (including heat, noise, vibration, including laser produced radiation), determining human exposure limits and developing effective measures for personnel protection.
- Responsible for coordination of all phases of Navy-unique medical research in chemical warfare defense.
- Provides centralized integration and coordination of the Navy's Biological Effects of Electromagnetic Radiation Program.

- Maintains liaison with related command research programs, BUMED, ONR, subordinate laboratories and other government department and agencies.
- Monitors in-house and contract RDT&E programs for these areas and advises field activities on research requirements and priorities.
- Serves as the Navy representative to the JTCG for Chemical Warfare Defense for the Armed Services Biomedical Research Evaluation and Management (ASBREM) Committee.
- Assists NAVMEDRSCHDEVCOM-44 in the JTCG for Human Systems Technology Coordinating Group for Human System Technology in the areas of Non-ionizing Radiation Bioeffects and Chemical Toxicology.

Research Area Manager, Aerospace Medicine and Human Performance (413)

- Coordinates planning and administration of life science research and development on human performance effectiveness in operational systems and environments of the naval service, including: work on the measurement and prediction of human performance under operational stresses (e.g., motion, sustained operations, thermal, noise, acceleration/impact, heavy workloads, etc.) of naval systems from which to develop human factors criteria for medical selection, training, engineering, work procedures; and performance maintenance/enhancement; work on the behavioral and psychological dimensions of health and safety under operations and stressful duties of naval service from which to develop criteria for medical screening and safety standards; and biomedical/biomechanical intervention techniques to maintain and/or enhance mental and physical performance in adverse operational settings.
- Maintains technical liaison with; CNO, BUMED, ONR, NMPC, Naval System Command, as well as those of the Departments of the Army and Air Force, and other government agencies, for matters pertaining to aerospace medicine and human performance.
- Coordinates the planning, development, and administration of RDT&E projects in the multiple fields and disciplines associated with aviation medicine and human performance.
- Monitors in-house and contract aviation medicine and human performance R&D programs and keeps performing organization advised as to requirements and priorities.

- Collaborates with the performing activities to evolve a research program which is scientifically excellent, responsive to Navy needs and requirements, and which is executable and viable in the evolving political and economic environment.
- Ensures programs are coordinated across the various funding sources and performers.

Counsel for Intellectual Property (44)

Counsel for Intellectual Property (44)

- Serves as an Attorney within a component office of the Office of the General Counsel of the Navy and as the principal advisor to the Director of Research and Development for matters related to intellectual property and cooperative agreements with other governmental and commercial organizations.

Secretary to Counsel for Intellectual Property (44S)

- Provides Administrative support to the Counsel for Intellectual Property.

Combat Casualty Care Division (45)

Division Director (45)

- Coordinates the planning, development and administration of RDT&E efforts directed toward improved treatment and care of casualties in combat environments.
- Monitors in-house and contract RDT&E requirements and priorities.
- Maintains liaison with the appropriate organizational codes of BUMED, ONR, Naval Sea System Command, Marine Corps, laboratories under the control of the Space and Naval Warfare Systems Command, Army Medical Research and Development Command, the Air Force Aerospace Medical Division, National Institutes of Health and other government agencies to facilitate management and execution of research area responsibilities.
- Serves as the Navy representative on JTCG for Combat Casualty Care for ASBREM committee to coordinate RDT&E in the thrust areas of: burns and trauma, shock and sepsis, blood and blood substitutes, combat care in extreme environments, and combat medical material.
- Serves as an appointed U.S. Navy representative as U.S. Project Officer for Annex No. MWDDBA-N-71-G-4209 "Blood Research" of Defense Development Exchange Program in DoD and Armed Services Blood Program Office.

Management Analyst (45A)

- Provides program and administrative support to the Division Director and Assistant Research Area Managers for the Combat Casualty Care Division.

Assistant Research Area Manager, Combat Casualty Care (451)

- Coordinates the planning, development and administration of RDT&E efforts directed toward improved treatment and prevention of disease and emergencies, and the care of combat casualties.
- Assists in the management and oversight of Combat Casualty Care Research Programs.
- Assumes cognizance over Combat Casualty Care Program matter when the Research Area Manager is absent from the Command.

Assistant Research Area Manager, Combat Casualty Care (452)

- Coordinates the planning, development and administration of RDT&E efforts directed toward improved treatment and prevention of disease and emergencies, and the care of combat casualties.
- Assists in the management and oversight of Combat Casualty Care Research Programs.

Research Management Division (42)

Division Director (42)

- Prepares major financial/ program documentation including annual inputs to the Program Objectives Memorandum (POM) and Six Year Defense Plan (SYDP) processes, the annual Budget and Apportionment Reviews, the Claimant Program Proposal, the Block Program Plan, and the Congressional RDT&E Descriptive Summaries. Assists in the preparation, and manages the recording of changes, of budgetary allocations to individual program efforts.
- Formulates options and recommendations on overall RDT&E program objectives, policies, and scope/direction for strengthening existing programs; recommends approval/disapproval of individual in-house and contract proposals and the allocation of funds to competing projects. Directly manages the NAVMEDRSCHDEVCOM Independent Research Program and the unique processes associated with this program.
- Develops and implements procedures for, and oversees the operation of, the review of program progress including the use of in-house reviews, outside Scientific Peer Review Panels, and specific program consultant reviews.
- Organizes, provides guidance/direction, and coordinates the development and presentation for competitive funding of major new research program initiatives (such as Accelerated Research Initiatives and Advanced Technology Demonstrations) in biomedical areas.
- Serves as the Associate Technology Base Manager and as the Associate Block Program Manager for the Medical CBR Defense and Bio-medical Technology Programs. Acts as a primary spokesperson and representative of NAVMEDRSCHDEVCOM programs to Navy and DOD R&D communities.

Research Administrator (421)

- Records, routes, tracks, numbers, files, and sets internal procedures for DD 1498's.
- Maintains and disseminates information on current DTIC policies and procedures, submits DD 1498's to DTIC, and searches DTIC databases.
- Administers NAVMEDRSCHDEVCOM publication library and Quarterly Listing/Mailing systems.
- Prepares/coordinates preparation of NAVMEDRSCHDEVCOM program documentation.
- Facilitates technology transfer.

Secretary to Research Management Division Director (42S)

- Receives visitors/telephone calls and incoming Code 04 correspondence.
- Prepares correspondence and NAVMEDRSCHDEVCOM program documents/reports.
- Uses automated data processing equipment to generate financial plans and presentation graphics.
- Maintains files and provides administrative support to NAVMEDRSCHDEVCOM Code 04.

Infectious Disease Division (43)

Division Director (43)

- Coordinates with the Research Area Manager, US Army Liaison (NAVMEDRSCHDEVCOM-46) for the planning, development and administration of RDT&E directed toward the epidemiology, immunology, rapid diagnosis, treatment, vaccine development and control of infectious diseases of military importance.
- Maintains liaison with BUMED, Navy Environmental Health Center, Marine Corps, the Uniformed Services University of the Health Sciences, ONR, Office of Naval Technology, the Armed Forces Epidemiological Board, the Armed Forces Pest Management Board, and the National Institute of Allergy and Infectious Diseases.
- Monitors the in-house and contract infectious diseases RDT&E program and keeps performing organizations advised as to requirements and priorities.
- Serves as Navy representative on selected U.S. Navy, tri-service, and international committees, as appointed, to coordinate R&D in the thrust areas of aviation medicine and human performance research.
- Serves as the Navy representative on JTCG for Human System Technology for ASBREM committee to coordinate joint service issues in RDT&E in the six areas of: Mechanical Force/Biodynamics, Non-ionizing Radiation Bioeffects, Personal Protective Equipment Technology, Operational Medicine/ Performance, Chemical Toxicology, and Environmental Physiology.

Oral Health Program Manager (431)

- Reports to the Director of Research and Development (Code 04). Develops research sponsorship , research requirements, provides guidance to our performers, and documents and briefs required, to our customers.